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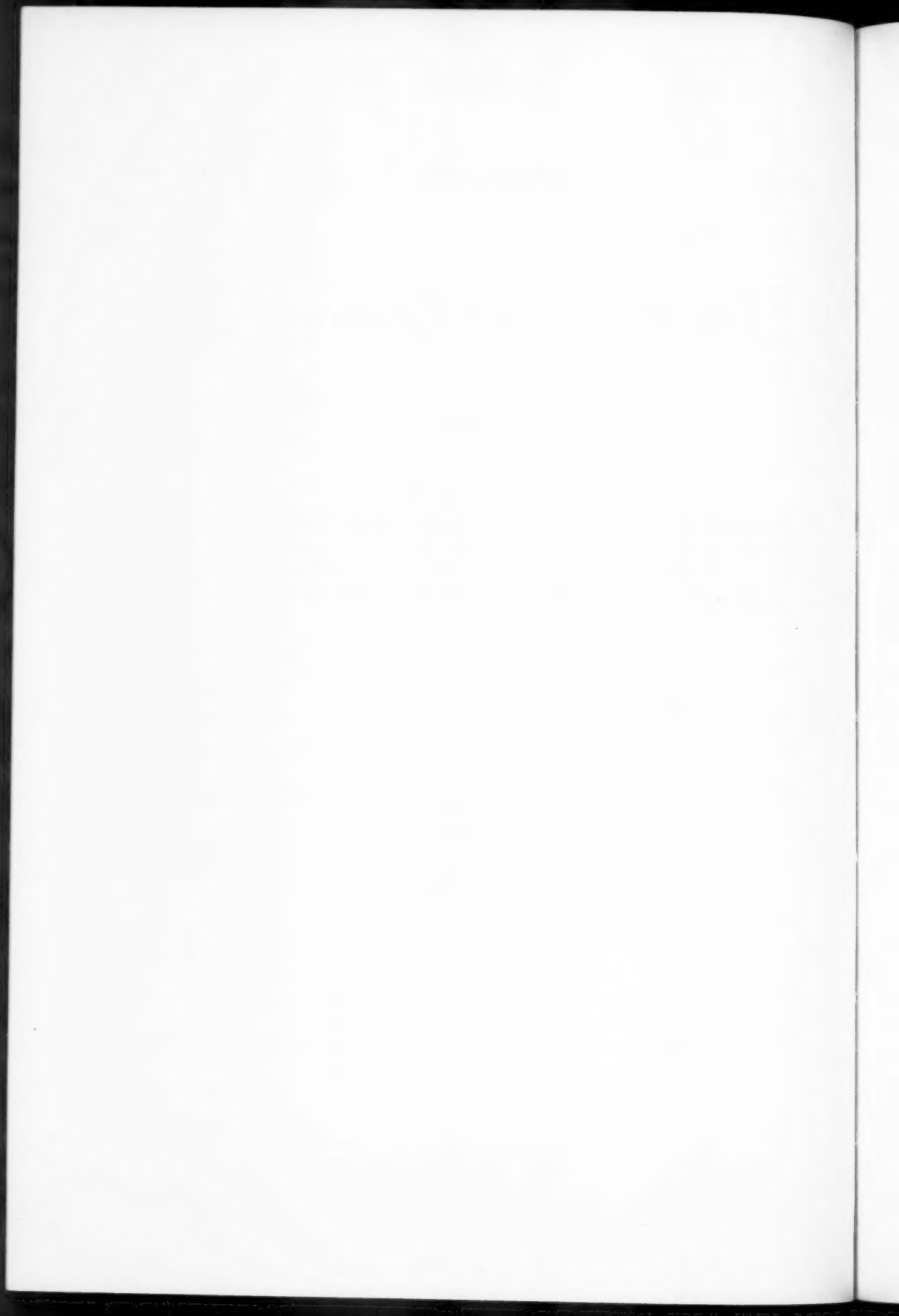


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ENDOCRINE STUDIES IN MENTAL CASES*

BY MEYER M. HARRIS, WILLIAM A. HORWITZ, AND SIEGFRIED E. KATZ

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The role of the endocrine glands in mental disorders has long been a subject of extensive speculation and study. The association of certain mental disorders with physical changes in the organism known to be dependent upon the hormones of the body, as for example adolescence and the onset of dementia præcox, has led one to seek for possible etiological relationship. The problem has been made more difficult by the fact that some investigators claim that certain of these physical changes are due to endocrine disorders whereas others question such relationship. Thus for example the obesity of the Froehlich syndrome attributed by some to endocrine disorders are believed by others to be due to cerebral injury.^{1, 2, 3, 5} Furthermore each gland may either function normally, may hyperfunction, or hypofunction, and some believe may even dysfunction, that is, secrete abnormal products having ill effects. Hoskins⁴ in "Tides of Life" points out that if one considers the combined action of various glands the clinical possibilities become exceedingly great and complex. Then too, there are the difficulties of disentangling the effects of psychic influences from the immediate effects of the medication.

Campbell⁵ has indicated some of the many difficulties involved in the problem of the relation of disease of the glands of internal secretion to mental disorders, for example, the uncertainty in the diagnosis of the exact nature of the endocrine disturbance; the difficulty of assigning to many factors the part which they contribute toward the clinical picture presented by the patient. He has also indicated the many pitfalls to be avoided in drawing hasty conclusions regarding etiological relationships and the great need for further study and observation.

The earlier therapeutic investigations with various endocrine products have been conflicting in their claims. In the light of our present knowledge it is very questionable whether many of the

*Read before the Interhospital Conference of the New York "Down-State" Hospitals, April 20, 1934, and the "Up-State" hospitals, May 4, 1934.

hormone preparations which were used had any effect at all since such preparations were probably inert in the manner in which they were administered.

Rosenfeld,³ in his recent review of the subject, indicated that the central role of the pituitary in relation to many of the other glands of internal secretion, (i. e., gonads, thyroid, adrenals) and also the potent products which have become available rendered it desirable to reinvestigate the problem of the effect of the pituitary hormones.

Zondek and Bier⁶ have claimed that extracts from the anterior pituitary have a sedative effect upon agitated states and believe they have found an effect on the bromine storage in the brain through which it produced its effect. This work however still awaits corroboration.⁷

It had been shown by the experiments of Zondek and Ascheim,⁸ Smith,⁹ and others that the pituitary gland is the stimulus to the gonadal systems of the male and female. It was also shown by Ascheim and Zondek¹⁰ that during pregnancy in the human female there are excreted large amounts of a substance which produces follicular enlargement and leutinization of the ovaries of the rat and mouse. This substance has since been prepared commercially and called antuitrin-S, follutein or prolan.

It has been claimed (Leonard,¹¹ Evans,¹² and others^{13, 14}) that the gonadal stimulating effects of pregnancy urine are potentiated by extracts obtained from the anterior hypophysis. Furthermore, some investigators (Noguchi,¹⁵ Collip,¹⁶ Smith¹⁷) have found that this extract (P. U. E.)* does not repair the deficiency in hypophysectomized female rats as manifest in its effect on the gonadal system. In hypophysectomized male rats, however, Smith reports that it produces marked stimulation of the interstitial cells of the testes associated with enlargement of the accessory sex glands (prostate and seminal vesicles) and also a slight degree of spermatogenesis. Collip¹⁶ and his coworkers obtain the effect upon the cells of Leydig but not the ameliorating effect on the germinal epithelium as reported by Smith. The physiological properties of the gonadal stimulating hormones of anterior hypophysis are therefore more closely stimulated by P. U. E. in the experimental male

*P. U. E. is the abbreviation which will be used for the extract obtained from pregnancy urine with gonadal stimulating properties.

rats although not entirely duplicated by it. Collip and his coworkers find that the preparation obtained from the urine of pregnant women also produces an enlargement of the anterior hypophysis in the female rat but not in the male, and believes that this effect is probably due to either a direct stimulation of the hypophysis or to an indirect one by way of the ovary.

It was at first thought that P. U. E. was produced by the pituitary gland because of the similarity of some of its physiological properties to those of extracts from the pituitary. However the studies just mentioned and others (Fluhmann,¹⁸ Reichert,¹⁹ Hill and Parkes,²⁰ Schockaert,²¹ Engle²²) have aroused serious doubts whether this substance from pregnancy urine is the same as that from the anterior pituitary or even whether it is derived from it.

The fact that this substance, produced in the human organism during pregnancy, has potent physiological properties simulating the anterior hypophysis and perhaps even stimulating it in some animals; the claim of favorable therapeutic effects from it in certain disorders of menstruation^{23, 24, 25, 31} and also in hypogenital development in the male,^{26, 43, 44} were considerations which we thought rendered it desirable to report* on its effect in certain mental patients.

Procedure:

Various types of cases were chosen for this study, psychoses accompanied by menstrual disturbances, involutional melancholia in the male and female, several cases of young males with hypogenital development and undescended testes and cases with regular menses in which agitation or anxiety formed part of the mental picture. The purpose of the study was to determine first, the effect of the prolonged daily administration of the hormone and secondly, the acute effect of varying doses.

All the cases had a preliminary period of observation of variable duration. The nature of the medication was not revealed to the patients in order to avoid the psychic effect of their knowing that the medicine was given for the purpose of affecting the gonadal system. In some cases placebos of sterile water were substituted for the medication. In a few of the cases other endocrine products,

*We were privileged to obtain antuitrin-S from Dr. E. A. Sharp of Parke, Davis & Co., for part of this clinical investigation.

besides antuitrin-S, were administered at certain stages in the treatment. All of the female patients had gynecological examination as a routine procedure. The basal metabolic rate of each patient was determined at varying intervals by the Benedict Roth metabolimeter.

GROUP I. PATIENTS WITH SECONDARY MENSTRUAL DISTURBANCES

As Barker²⁸ states: "The relation of the menstrual periods and menopause to disturbances of the psyche can scarcely have been overlooked by any person of experience."

It would be beyond the purpose of this paper to enter into any detailed discussion regarding the nature of the menstrual cycle. Those interested in the topic will find an excellent discussion and bibliography of the subject by Corner.²⁹ He points out the conflicting hypotheses which have been put forward to explain the human menstrual cycle and as he states, "None of them is fully demonstrated and indeed not one is free from contradictions and difficulties which cannot be explained away."

According to the classification of Schroeder,³⁰ amenorrhea may be considered as either primary or secondary. The former is associated with genital hypoplasia whereas the latter shows no genital involvement but is secondary to a variety of conditions such as, tuberculosis, metabolic disturbances, thyroid disturbances, mental disturbances, etc. The mechanisms and significance of the amenorrhea in the latter conditions are not clear.

Whether the secondary type of amenorrhea is protective in nature is not at all certain, although it would appear to be so in some cases. Some patients with psychosis develop menstrual disturbances which may disappear even though the psychosis progresses. Certainly, the claim that the amenorrhea is protective in character would not appear to be borne out by such cases. In other cases, however, the return of menses may be the early harbinger of mental recovery.

Kurzrok³¹ has carried out studies on the urinary excretion of estrin and gonadal stimulating hormone in patients with amenorrhea in order to classify his cases regarding the therapy indicated. One cannot be certain, however, that an increased excretion of a

hormone necessarily indicates an abnormal supply or formation. This has been pointed out in the studies of Frank³⁵ in which he showed that certain patients had a low renal threshold and therefore excreted hormone in abnormal amounts while its level in the blood remained abnormally low.

Kurzkrok, however, has found studies of the excretion of the hormone of definite help in deciding upon the type of treatment.

We have not made any such determinations for the clinical study up to the present time but hope to be able to do so in some of our subsequent studies.

Zondek³² and others^{23, 24, 25, 31} claim to have used with some success prolan or its equivalent, for some cases of amenorrhea and of other menstrual disturbances.

The group for this part of the study consisted of 8 patients which may be divided as follows: Sub-group a: four cases of manic-depression, sub-group b: two cases of psychoneurosis, sub-group c: two cases of dementia præcox. These patients were given daily injections of 50 to 200 R. U. of antuitrin-S for varying periods of time in order to determine whether such injections would have any effect upon the menstrual disturbance and the mental state.

Sub-group a. Manic-depression.

Patient (M. G.) (Case No. 1) was in a depressed phase of her psychosis and had not menstruated for 5 months prior to antuitrin-S administration. Eleven days after beginning therapy (100 R. U. of antuitrin-S daily), she gradually began to develop a manic state over a period of one month. This lasted only a few days at its height and the patient then improved. Menses also returned about 1 month after beginning therapy, the patient being somewhat more irritable at this time. The patient thus went through a manic cycle which subsided while she was still receiving the medication. The hormone was discontinued for 20 days during which period she continued to improve, having only a few slight relapses in her behavior. The antuitrin was then resumed and continued for 2½ months. Improvement continued, the patient had no repetition of the manic cycle which had occurred with the first course of treatment. The patient went through three menstrual cycles and during this second period of treatment, gradually improved and went

on to recovery in her mental state. The irritability which had occurred with the first resumed menses did not occur in the later periods. Since there was no return of any manic manifestation during the second course of treatment of about 2½ months' duration, it is probable that the manic manifestations of the first therapeutic period were part of the usual cycle through which these patients may pass and was unrelated to the endocrine therapy.

Patient (M. Ge.) (Case No. 2) was in the hospital for about 3 months, during which time she had not menstruated. She was placed on 50 R. U. of antuitrin-S daily. After about 2 months she showed some signs of improvement, appeared brighter, cheerful and interested but still hallucinated however and her amenorrhea persisted. After 3 months of therapy her menses returned. During the fourth month of therapy there was another menstrual period. She ventured the opinion at this time that the medicine had done her "a lot of good." She was discharged shortly thereafter, as recovered.

Patient (H. McG.) (Case No. 3) a depressed case of manic depression. Her last menses occurred 4 months prior to beginning antuitrin-S. She was given 100 R. U. for 23 days. Three days after discontinuing medication menses set in. Following the return of menses she became more cheerful and had no recurrence of depressive symptoms when the second menses took place about 5 weeks later.

Patient (Fl. D.) (Case No. 4). Case of depression of the manic-depressive type. She was given 50 R. U. of antuitrin-S for 26 days. There was no return of menses nor appreciable change in the mental state.

Thus three out of the five patients improved during the period of hormone administration, which was accompanied also by a return of the menses. It is difficult, of course, to say whether the medication played any role in the improvement, because of the spontaneous recovery which occurs in this group of patients.

Sub-group b. Dementia præcox.

Patient (L. H.) (Case No. 5) a case of catatonic dementia præcox, received 100 R. U. of antuitrin-S for several months. Her

menses returned during this period but the mental status remained unchanged.

Patient (H. E.) (Case No. 6), a case of dementia præcox of the paranoid type. She had not menstruated for about 2½ months. Antuitrin-S, 50 R. U., was administered daily hypodermically, for a period of 35 days. No apparent change occurred in her mental state and there was no return of her menses.

Sub-group c. Psychoneurosis.

Patient (M. W.) (Case No. 7) had a history of long standing mental illness and had received various forms of psychotherapy without much improvement. She also gave a history of scanty and irregular menstruation. She was placed on 50 R. U. of antuitrin-S daily for about 5 months. Immediately after starting hormone treatment, she stated she felt very much improved. She described a sensation of marked relaxation following each injection which lasted about six hours. The menses became regular and normal in amount. She stated she had never felt so well in the 12 years of her illness. After five months she was threatened with the loss of her job which eventually occurred together with the economic stress occasioned thereby. Her symptoms returned. Antuitrin-S was increased to 100 R. U. and eventually to 200 R. U. hypodermically but the ameliorating effect previous noted did not take place.

Patient (M. F.) (Case No. 8) had scanty and irregular menses. She was placed on antuitrin-S (50 R. U.) which was administered daily for about 9 months. Her menses occurred regularly and was more abundant in amount during the 9 months of treatment. Her mental state gradually improved and she stated that disagreeable symptoms which usually occurred at the time of her menses were less severe.

GROUP II. PSYCHOSES ASSOCIATED WITH THE MENOPAUSE OR CLIMACTERIUM

With the onset of menopause there appears in the urine appreciable amounts of a substance called by Zondek prolan A. This substance has the property of producing follicular ripening of the

Graffian follicles in the immature rat and mouse and will do so in the absence of the hypophysis (Leonard and Smith³³). This substance appears to be different from that found in pregnancy urine which Zondek calls prolan B, the latter producing essentially leutiniz- ing and perhaps some follicular growth in the gonads of the immature rat or mouse and as previously stated is ineffective as substitute therapy in the hypophysectomized animal.* It is believed by some investigators that the increased excretion of Prolan A in menopause** results from either the removal of the inhibiting effect upon the pituitary by the ovary which it brings about through its estrin^{49, 50} or from the lack of utilization of the prolan by the decrescent ovaries or both. The evidence for this is not entirely conclusive although it points strongly in that direction. Saethre³⁴ reports a case of psychogenic amenorrhea in which the excretion of prolan was uninfluenced by the injection of 2000 M. U. of folliculin. One does not feel assured that the increased hormone excretion does not represent an attempt at compensation or perhaps a change in the renal threshold thus permitting an excessive loss of hormone in the urine. Frank and his coworkers³⁵ believe, for example, that the corpus luteum alters the threshold of the kidneys for estrin whereby the level of the hormone in the body is rapidly diminished. It is a known fact that the threshold of the kidney may be altered for other important substances, thus, phlorizin will lower the threshold of the kidneys permitting glucose to be excreted in large amounts even to the point of producing hypoglycemia; also the recent work of Loeb and his coworkers³⁶ has shown that in Addison's disease, with destruction of the cortex of the adrenals there is a loss in ability on the part of the kidney to conserve sodium.

It is not apparent, also, why no appreciable amounts of leutinizing hormone are excreted at the same time. In view of these various physiological considerations we thought it would be of interest to study the effect of the administration of antuitrin-S or Prolan B in those conditions in which there may be an increased excretion

*There is still some controversy whether prolan A and B are independent substances and occur apart. (See chapter by Engle, E. T., in *Sex and Internal Secretions* (Allen), p. 765 (Williams and Wilkins Co., Baltimore, 1932).)

**Zondek has described patients in climacteria who show a polyhormonal excretion of theelin, theelin and prolan or prolan alone, depending upon the stage of the climacterium. See p. 244 of reference No. 32.)

of Prolan A or follicle stimulating hormone. We have not had available, as yet for therapeutic study, any Prolan A from menopausal urine.

This group consisted of a total of 12 cases (numbers 9 to 20 inclusive). There were seven cases of involutional melancholia* (6 females and 1 male^{51,52}), four cases of manic-depressive psychosis,** one case of psychoneurosis and one case of artificial menopause with psychoneurosis or involutional melancholia. Antuitrin-S was administered daily usually in doses of 100 R. U. hypodermically for variable periods of time (for details see protocols).

Patient (M. McN.) (Case No. 17) on the day following the injection, claimed that she felt as if a burden was taken off her shoulders. She was more interested in her environment, was communicative, became somewhat brighter in her outlook. However recovery was not complete and she reached a point beyond which she did not improve.

H. T. (Case No. 9) a male patient with involutional melancholia, showed marked improvement during the course of the injections with relapses on discontinuing medication. This was observed repeatedly the details of which are given in the protocol. It was thought by some that the disturbed mental states were rather of unusually short duration. However in his last relapse, a similar series of injections failed to be accompanied by any prompt improvement.

Patient M. E. (Case No. 11) showed rapid improvement following the beginning of antuitrin-S and left the hospital on leave after three months and on parole two weeks later. Improvement continued while patient was on placebos during last two weeks in the hospital. Four days after being paroled, she had a relapse. Placebos were resumed but without effect. Antuitrin-S (100 R. U.) daily was then given but also without effect.

Patient (F. C.) (Case No. 12) made slow and progressive improvement while on antuitrin-S. During the treatment saline injections were substituted as placebos. This produced no notable change in the clinical course.

*Case No. 12 had received x-ray therapy 1½ years previously for uterine fibroids.

**Case No. 18 had an oophorectomy and hysterectomy at about the time of her climacterium.

Similar courses were followed by the other patients in this group, the details of which will be found in the protocols. In none of the cases was any aggravation of the clinical symptoms observed. Whether the slow amelioration of the symptoms usually observed was in any way due to the endocrine therapy one cannot say. If more cases with acute effects, such as occurred in cases No. 9 and No. 17, were obtained one would be more ready to point to a possible therapeutic effect.

Three of the cases No. 10, No. 15, and No. 18, showed no improvement. One of them, case No. 10, who had had amenorrhea and hot flashes, for 2 years before admission and for another 6 months while in the hospital, had a return of her menses* after being given antuitrin-S. Patient was happy for this event, but otherwise her mental state remained unchanged.

GROUP III. PATIENTS WITH NORMAL MENSTRUAL CYCLES

Zondek and Bier⁶ had reported favorable effects from the use of certain anterior pituitary preparations in agitated cases.** On this basis, in the early part of this study, five patients (cases No. 21 to 25 inclusive) suffering from various forms of mental disturbances, in which anxiety or agitation was a part of the clinical picture were given antuitrin-S. These patients had normal menstrual cycles, however, and there was no indication for endocrine therapy from this standpoint.

Although the medication was administered for approximately from two to four months no notable effect was observed in the mental state which could be attributed to the medication. There was, however, a more profuse flow at the regular menstrual periods in the first month of therapy in three of the cases, otherwise the menstrual cycles also remained unaltered by the medication.

DISCUSSION OF THE EFFECT OF ANTUITRIN-S ADMINISTRATION ON MENSES

In the patients with amenorrhea due to menopause with the exception of patient L. E. (Case No. 10) there was no return of any bleeding from prolonged antuitrin-S administration nor was there

*One cannot tell whether the bleeding obtained was of a normal menstrual type.

**These authors do not claim this effect for the gonadal stimulating hormone of the hypophysis.

any return of symptoms such as are prone to occur in women during menses. There are reports of the cyclic occurrence of symptoms in some women during their menopause which are similar to those which had previously been associated with their menstruation, this even though no menses occurs (*molemina menstrualis*³⁷). Such symptoms were not produced by the use of the hormone.

In some of the patients with secondary amenorrhea, menses returned during continued medication. One could not be certain whether the medication was responsible for the reappearance of the catamenia since the same may occur spontaneously. However, it is of interest that antuitrin-S did not prevent menses and was probably another indication that it does not produce continued luteinization of the ovaries in woman since this is believed to prevent menstruation. This finding is in keeping with the physiological effects discussed earlier in the paper. Hamblen²⁴ also reports that it does not interfere with ovulation since one of his patients became pregnant while receiving this hormone.

In cases with regular menstruation, no alteration of the cycle was observed, this being another indication that abnormal luteinization probably was not produced. It would also appear from these results that the spontaneous cycles in the endocrine glands related to the gonadal system were also unaltered by the hormone in the doses used in these studies.†

PATIENTS WITH HYPOGENITAL DEVELOPMENT

Menninger,³⁸ in his article on pituitary disorders, states that a direct connection between intellectual retardation and hypopituitarism in certain patients seems probable although it cannot be conclusively shown. He also points out that since so-called dyspituitary manifestations are present in certain cases without showing any psychopathological manifestations it would certainly be incorrect to assume a relationship in every case. He and others have cited examples of adiposo-genital dystrophy even with precocious mental development.

†In one case of a nurse who had had abnormal menses for years, passing large blood clots with each period, the administration of 100 R. U. for short periods prior to the menses produced marked improvement. There was also less premenstrual tension and headaches which she almost always had had with her periods.

Cushing³⁹ has pointed out the complexity of pathology of the pituitary and hypothalamic region.

Several investigators have demonstrated that one is not in a position to separate, as yet, hypophyseal symptoms from those due to the diencephalon.³ Furthermore lesions of the mid-brain may act on the hypophysis and produce hypophyseal manifestations although the mental disturbance associated with it may still be of cerebral origin.

Buchler² reports one case of a medical student with catatonic paranoid dementia præcox, who responded rapidly to organotherapy. He also refers to a case of Mckulsky in which dementia præcox developed with a tumor of the hypophyses.

Ebaugh and Hoskins⁴¹ report a case of adiposo-genital dystrophy treated with preparations of the whole gland of the pituitary. The fatigability and shortness of breath of the patient improved. He became less irritable. Following the addition of thyroid and suprarenal preparations his genitals also developed. He became less childish in behavior and more self-reliant. The authors point out, however, that they could not be certain to what extent psychotherapy played a role in the mental improvement.

Wilson⁴² reported that in a case of genital dystrophy treated with an extract prepared by himself, from anterior hypophyses, there resulted an increase in the size of the testes and marked improvement in the clinical picture in that the dullness, lethargy, and laziness disappeared and the boy became bright and active.

As was pointed out earlier in the paper, it is a question to what extent the physical manifestations in such cases are due to endocrinological, inherited somatic, or neurological factors. The value of attempting to obtain further information regarding these cases through the use of potent endocrine products related to the pituitary is obvious.²⁷

Engle⁴³ found that injections of extracts from pregnancy urine will bring about descent and enlargement of undescended testes in monkeys.

Schapiro⁴⁴ has reported of the favorable effect of "prä-hormon" injections upon hypogenital development and cryptorchism.

Similar results from the use of antuitrin-S were reported by Sexton.²⁶

For the purpose of this investigation, a group of cases with hypogenital development were studied to determine whether the prolonged administration of antuitrin-S would affect the physical manifestations, the mental picture or both.

This group consisted of six male patients.* Two of these were young men diagnosed as cases of dementia præcox. One had an undescended testicle and a small hypoplastic testis in the scrotum. This patient (case No. 26) received 50 to 75 rat units twice weekly for one month and 100 R. U. of antuitrin-S approximately every 2-3 days for another period of about one month. The undescended testis which was palpable in the inguinal canal appeared to enlarge and approach the external inguinal ring after about 1½ months of treatment. There was no appreciable notable change in the mental state. The other patient (case No. 27) had markedly hypoplastic testes. He received 50 R. U. of the hormone hypodermatically for 12 months. The patient slowly improved mentally during this long period. The physical status remained essentially unchanged.

Three of the patients were behavior problems. Patient S. S. (case No. 28) 18 years old, weight 95.5 kg., a Froehlich type, with mental retardation, lied and indulged in petty stealing. He had an I. Q. of 80. He was placed on antuitrin-S, 50 R. U. daily for 3 months, 100 R. U. for 2 months and 150 R. U. for a little over one month. There was no effect noted on the genital system. There was only a questionable slight degree of improvement in behavior which may have been due to psychotherapy.

Patient Wm. C. (case No. 29) age 12, obese, with small genitals and one undescended testis, diagnosed a case of mental deficiency with compulsion neurosis and hypopituitarism. He received 50 R. U. of antuitrin-S daily for 51 days. No essential change occurred either in his physical or mental status.

Patient M. A. (case No. 30) age 13, of Froehlich type, was a behavior problem, but was rather bright. He received 50 R. U. of antuitrin-S three times weekly for about 4 months. The patient made a good adjustment. There was a gradual appearance of pubic hair and improvement in behavior. (See protocol.) The

*Since this paper was read we have treated another patient with mental deficiency, age 15, presenting a Froehlich syndrome and undescended tests, with antuitrin-S, 100 R. U. daily. Both testes have descended but the mental picture has remained unchanged.

change in physical status with development in secondary sex characteristics progressed during the subsequent year although no further medication was given. The favorable changes are recorded although one cannot be certain of any causal relationship.

One patient, B. N. (case No. 31) age 12, was a case of dementia præcox with marked periods of excitement who had some features suggestive of a Froehlich syndrome. He was given antuitrin-S in doses of 50 and 100 R. U., as indicated in the protocol, for a period of one year and one month with short periods of rest. There was some improvement during the early part of the treatment, the patient was more amenable and cooperative. This, however, was not maintained. It was thought in the early stage of the treatment that there might have been some favorable effect from the medication since the child had been under observation for about 11½ years without any previous notable sign of improvement.

Except for case No. 26, the patients did not show any immediate marked effect upon the hypogenital development and cryptorchism. However it is possible that the dosages employed in these cases were too small. It has been pointed out that very large doses may be required to bring about the descent of undescended testes in some cases.

It will be of interest to study some of the cases further using larger doses of the hormone.

EFFECT ON BASAL METABOLIC RATE OF ANTUITRIN-S ADMINISTRATION

Zondek^{32a} claimed that prolactin as prepared by him from anterior pituitary glands contained a component which depressed the basal metabolic rate. Koehler⁴⁵ claimed that she was able to confirm this finding using prolactin from pregnancy urine. Zondek^{32b} also claimed that he obtained favorable results with the preparation in marked under-nutrition and hypophyseal cachexia, which he attributed to the effect on the basal metabolic rate. Falta⁴⁶ also claims to have observed a depressing effect on basal metabolism, in certain cases from the prolonged administration of prähormone. He also reported that some cases showed a depression of the B. M. R. within one-half to three-quarters of an hour after injection with a return to the previous level in one hour. He claimed, for example, that

this did not occur in eunuchoid individuals but did in cases of pituitary genital dystrophy. Bernhardt on the other hand believes that the anterior pituitary hormone, präphyson, tends to return the basal metabolic rate to a normal level either raising or lowering it as is necessary.

Collip¹⁶ has reported that in rats the leutinizing extract from pregnancy urine administered over a continued period of time, produced marked enlargement of the thyroid gland.

In view of these reports in the literature as to the influence on metabolism, observations were made regarding the acute effect of antuitrin-S on the basal metabolic and also its effect after prolonged administration.

The results of the acute effects have been tabulated in Table A.

It will be seen that 100 to 200 rat units of antuitrin-S produced no striking nor consistent acute effect upon the basal metabolic rate, on repeated examination, in the patients studied.

No marked effect upon the basal metabolic rate beyond the usual variations which one finds in patients without treatment, resulted from the prolonged administration of antuitrin-S. The findings are presented graphically in the protocols.

In some cases there was a tendency for a low basal metabolic rate to return gradually toward a normal level. This was accompanied by the gradual improvement of the patient (See case No. 12). This may occur in some psychotic patients without endocrine treatment and it is therefore difficult to know whether the hormone played a role in the phenomenon. It may, however, indicate that the hormone administration had no aggravating effect upon the clinical course of the psychoses.

The acute effect of antuitrin-S on the basal metabolic rate of a case of Graves disease was also studied (case No. 32). No acute depression of the basal metabolic rate was obtained (see table). This was not in keeping with the results which Falta⁴⁶ and Czoniezer and Kleiner⁴⁸ claimed they obtained in their cases.

The latter authors, for example, stated that in cases of Graves disease, 100 to 200 rat units of prähormone decreased the basal metabolic rate three-fourths of an hour after administration.

No notable enlargement of the thyroid gland was observed in

our series of patients similar to that which Collip reported as occurring in his experimental animals as was mentioned previously.

EMMENIN TREATMENT

Collip⁵³ and his coworkers obtained an extract from human placental tissue which he called emmenin. Originally, they thought that this extract had gonadal stimulating properties, when fed to young rats. In recent publications⁵⁴ they withdraw this claim for the substance and now believe that it is probably a complex containing trihydroxy-estrin. This substance is strongly oesterogenic in the rodent provided the ovaries are intact. They believe that the ovaries may, in some way, change trihydroxy-estrin preparation into a ketohydroxy-estrin which acts upon the uterus and vagina.

In the earlier publications,⁵⁵ they claimed that the placental extract has an ameliorating effect in certain menstrual disturbances and in early spontaneous menopause when it was given orally. Emmenin (5 c.c., t. i. d.) was administered orally for a period ranging from 1 week to 1 month to a group of five patients (cases No. 7, 11, 14, 16, 18) in whom antuitrin-S had also been tried.*

No notable clinical effect was observed upon the mental state of these patients. The graphs in the protocols show the relation of the medication to the menses and basal metabolic rate.

DISCUSSION

In view of the spontaneous clinical changes which occur in patients, it has been difficult to determine whether any causal relation exists between the clinical course and the medication. However, some of the acute effects observed, although small in number, may be worthy of further investigation since they may represent the effect produced in special clinical types.

It has been pointed out by some investigators that the state of

Note regarding side reactions: A number of patients had local induration, redness and swelling at the site of antuitrin-S administration. This usually disappeared within 24 to 48 hours after injection and never suppurated. Only one case had a generalized reaction with malaise and a generalized swelling of the lymph nodes. The same batch of material produced these side reactions in some patients and not in others thus indicating an individual idiosyncrasy to the extracts.

*Case No. 18 received only 3 c.c. t. i. d. because 5 c.c. seemed to be accompanied by extreme dizziness.

a patient at the time a hormone is administered may influence the result which is obtained. This is known to be true, for example, for the action of progestin (the hormone from the corpus luteum) upon the endometrium of the uterus. Thus no marked stimulation of the endometrium results unless it has been previously sensitized by estrin. Progestin may, therefore, produce no effect at one time and a very marked effect at another time depending upon the status of the uterus at the time of administration.

A similar condition may exist in the patients which may account for positive effects at one time and none or opposite effects at another time. It may be incorrect to assume, for example, that the medication was without effect in case No. 9 because marked improvement did not follow one course of treatment although several of the previous courses were accompanied by definite improvement. Only more detailed study of the cases and further observation of a large group will enable one to evaluate the effects observed.

We are reporting, therefore, the observations which have thus far been made in the hope that they may suggest further lines of investigation and also add to the knowledge regarding the rôle which the hormones play in the clinical pictures observed.

SUMMARY AND CONCLUSIONS

1. A group of mental patients was investigated regarding the effect of the administration of antuitrin-S and also of emmenin.
2. With few exceptions, the patients improved clinically, indicating that the hormone probably had no deleterious effect upon the clinical course.
3. The administration of antuitrin-S was followed by immediate improvement in only a few of the cases and it was therefore impossible to decide whether improvement was merely a concomitant occurrence.
4. The prolonged administration of antuitrin-S did not interfere with the regularity of the menstrual cycle in those patients who had normal cycles when the medication was started.
5. In some of the cases of secondary amenorrhea, menses re-

turned following antuitrin-S administration. This was usually, but not always, coincident with improvement in the mental state.

6. The causal relationship between the return of the menses and the medication is not established because such phenomena may occur spontaneously.

7. One case of profuse menstruation with blood clots and premenstrual tension of many years' duration improved following antuitrin-S administration.

8. In one case of spontaneous menopause with amenorrhea of several years' duration, there was a return of a menstrual period during antuitrin-S administration.

9. In only one of the male patients with undescended testes did antuitrin-S appear to bring about enlargement of the gonads with a tendency to descend toward the scrotum.

10. No notable effect which could be readily attributed to the medication was observed on the mental state of the male patients with hypogenital development.

11. No consistent effect on the basal metabolic rate was observed after a prolonged period of antuitrin-S administration.

12. Antuitrin-S produced no consistent acute effect upon the basal metabolic rate.

13. No lowering of the elevated basal metabolic rate resulted from antuitrin-S in a case of Graves' disease.

14. A number of the patients had local induration and swelling around the point of injection following antuitrin-S. This always subsided within 24 to 48 hours and never suppurated.

15. Only one case had a generalized reaction with malaise, and generalized swelling of the lymph node.

16. Emmenin produced no notable clinical effect in the cases studied.

ACUTE EFFECTS OF ANTUITRIN-S ON THE BASAL METABOLIC RATE

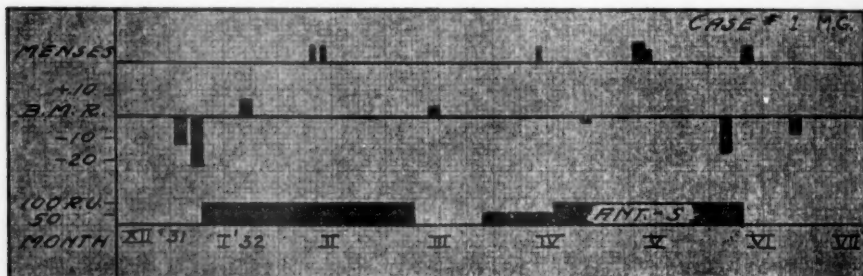
Patient	Date	Basal metabolic rate			
		Before injection	½ hr. after Ant. S	1 hr. after Ant. S	After 1 hr. rest, no medication
M. F. ♀	5-18-32	-8.6%	....	-8.0% (200 R. U.)	
Case No. 8	11-25-32	-8.0%	-10.0% (100 R. U.)	-10.0%	
Psychoneurosis	12-9-32	-3.3%	0.7% (100 R. U.)	-2.1%	
D. D. ♂	5-9-32	-5.9%	....	+1.1% (200 R. U.)	
Case No. 27	5-19-32	-15.0%	....	-6.0% (200 R. U.)	
Dementia præcox	6-6-32	-11.8%	....	....	-11.8%
S. S. ♂	4-2-32	-15.9%	....	-16.8% (50 R. U.)	
Case No. 28					
Hypopituitary (Froelich)	7-2-32	-0.3%	....	....	-6.7%
Behavior problem	11-26-32	-8.7%	-8.0% (100 R. U.)	-8.0%	
Case No. 31 ♂	12-2-32	+4.8%	+9.0% (100 R. U.)	+7.1%	
B. N.					
Dementia præcox	12-7-32	+0.5%	+1.0% (100 R. U.)	+2.0%	
Case No. 29 ♂	2-20-32	-5.3%	....	+2.3% (100 R. U.)	
W. C.					
Hypopituitary (Froehlich)	5-11-32	+5.3%	....	....	+4.7%
Case No 25 ♀					
F. S.					
Manic- depression	2-11-33	+6.4%	+2.4% (200 R. U.)	-1.5%	
Case No. 1 ♀	5-19-32	-13.0%	....	-8.0% (200 R. U.)	
M. G.	6-9-32	-6.5%	....	....	-3.8%
Manic- depression	11-22-32	+2.0%	-2.0% (100 R. U.)	+0.6%	
Case No. 32 ♀					
A. S.					
Hyperthy- roidism	1-20-32	+28.5%	....	+26.7% (100 R. U.)	
Case No. 5 ♀	5-18-32	-37.0%	....	-25.0% (200 R. U.)	
L. H.					
Dementia præcox	6-8-32	-40.0%	....	....	-42.0%

PROTOCOLS

CASE No. 1. M. G., age 25, hospital No. 557, stenographer, admitted 9/9/31. Three months before admission, became irritable, indifferent to her family and was depressed. She ate little and slept poorly. Menses ceased two months before admission. In the hospital, she was retarded and depressed, complained of feeling tired and weak but gradually adjusted to the routine. She did not menstruate.

Antuitrin-S, 100 rat units daily, was begun three months after admission. Four days later, she complained of frequency of urination and in two weeks became noisy, elated and overtalkative. Menses returned the following month. She went through a manic cycle which subsided while still receiving antuitrin-S. The medication was discontinued for 3 weeks during which period the improvement in her mental state continued. Medication was resumed and continued for $2\frac{1}{2}$ months more. The manic state which developed during the first period of antuitrin administration did not recur in the second period. The patient continued on to recovery. The menses returned, the first period being accompanied by an increased premenstrual irritability which was not present in later periods, when her mental state was much improved.

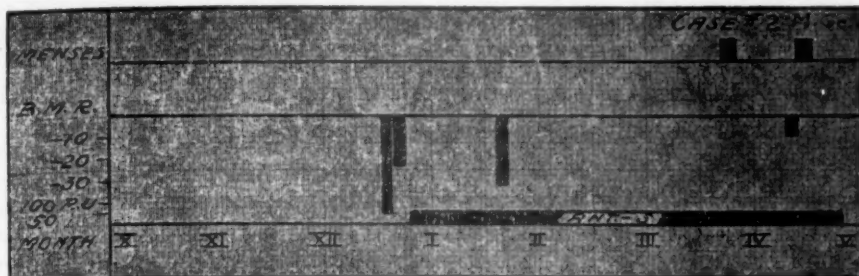
Discharged 6/15/33. Diagnosis: Manic-depression—circular. Condition: Recovered.



CASE No. 2. M. Ge., age 22, housewife, hospital No. 604, admitted 10/17/31. Patient gave birth one year before admission and was well at this time. Six months later, following an induced abortion, she became nervous and irritable. Three weeks before admission, she became acutely disturbed, was unable to sleep and was confused. She began to hear voices and had delusional beliefs, such as, her head was not her own, rats were inside her stomach.

In the hospital, she continued to be agitated, disturbed and confused and did not recognize her relatives or nurses. She hallucinated constantly and maintained prolonged fixed postures. Amenorrhea was present since admission. Antuitrin-S, 50 rat units daily, was begun about 3 months after admission and continued for four months. Menses did not return till $2\frac{1}{2}$ months after antuitrin-S was begun. About 1 month after the return of her menses signs of improvement in her mental state were noticed and she continued to improve till discharged.

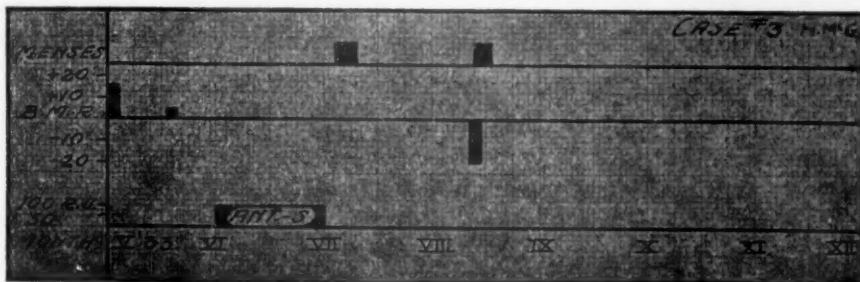
Discharged 4/25/32. Diagnosis: Manic-depression—depressed. Condition: Recovered.



In the hospital, she was quiet, seclusive and retarded. She adjusted to the routine but showed little improvement. She did not menstruate.

Antuitrin-S, 100 rat units daily, was begun three weeks after admissions and continued for one month. A day or two before the medication was discontinued, she was observed to be more cheerful than previously. Four days after discontinuation of the antuitrin, her menses returned and she became pleasant and cheerful. She was not depressed at the time that she expected the next menstrual period but was greatly pleased when the next period recurred, six weeks later.

Discharged 8/12/33. Diagnosis: Manic-depression—depressed. Condition: Much improved.



During her hospital residence of 11 months she showed practically no change in her mental status. Physically, she was underweight and had a severe acne of the face.

There were two scant menstrual periods about six months after admission with no change in her general condition. In the last month of her residence she received antuitrin-S, 50 rat units daily for 16 days with no effects.

Discharged 11/19/33. Diagnosis: Manic-depression—depressed. Condition: Slightly improved. None of the improvement could be attributed to the medication.

CASE No. 5. L. H., age 20, hospital No. 490, student, admitted 6/29/31. Seven weeks before admission, patient complained of not feeling well. She had a cold and upset stomach. That night, she went to a party and on the way home was attacked sexually by her escort. She became very nervous, suffered nausea, began to eat little and lost weight. A few weeks before admission, she became restless, agitated and 4 days before coming to the hospital, she became disturbed and spoke irrelevantly and irrationally.

In hospital, she remained in a stuporous condition. She was mute, retarded and negativistic. She wet and soiled. She had to be spoon fed. She did not menstruate.

Antuitrin-S, 100 R. U. daily was begun 6 months after admission and continued for about 5 months.

During this period, patient gained about 6 kgs. in weight. Her menses returned but otherwise her condition remained practically unchanged. Her basal rate at the time medication was started was -4% and -9% . During period of treatment basal metabolic rates were not obtained because of uncooperative state of patient. At the end of the period, the B. M. R. was found to be between -35% and -40% . At this time she was placed on thyroid medication and her B. M. R. was elevated to plus 2% . This, however, did not result in any clinical improvement and patient was eventually transferred on 1/16/33 to another hospital. Diagnosis: Dementia præcox—catatonic. Condition: Unimproved.

CASE No. 6. H. E., age 41, single, hospital No. 562, admitted 9/14/31. In the past several years, patient has spent considerable time at home with the sister, who is a case of dementia præcox. One and one-half years ago, patient became interested in cults, spiritualism and vibrations. Three weeks before admission, she felt her thoughts were being controlled and that she was being attacked. In the hospital, she hallucinated openly, talked of spirits and responded to their commands.

Antuitrin-S, 50 rat units daily was administered for 35 days.

There had been only one scant menstrual period several weeks after admission, and the medication that was given did not effect a return.

Mentally, there was no change.

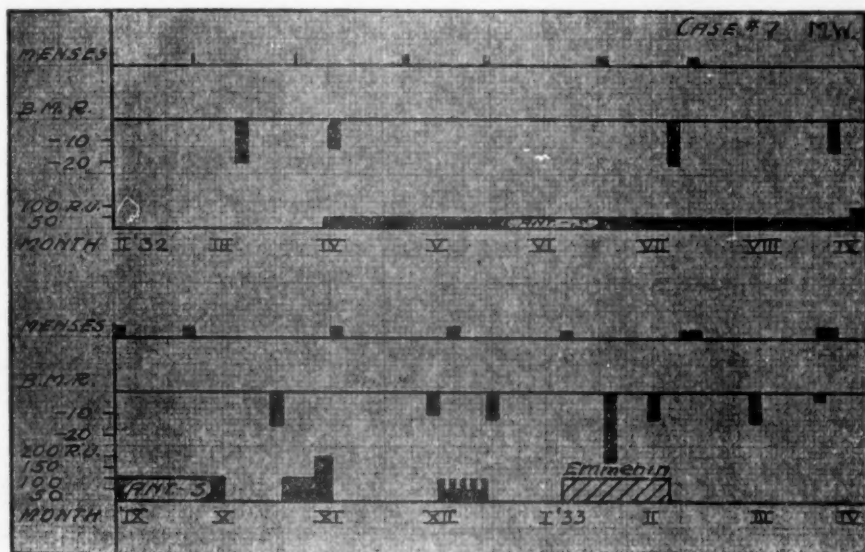
Discharged 1/30/32. Diagnosis: Dementia præcox—paranoid. Condition: Unimproved. Since then, we have learned that she has been in other psychiatric hospitals.

CASE #6 H.E.											
MENSES											
B.M.R.	UNCOOPERATIVE FOR B.M.R. DETERMINATION										
100 R.U. 50											
MONTH	IX	X	XI	XII	I 32	II	III	IV	V	VI	VII

CASE No. 7. M. W., age 30, hospital No. 1045, admitted to OPD 1/11/32. Patient's present illness began three months before admission to the out-patient department with complaints of vomiting, pain in the abdomen, loss of weight, headaches, feeling of depression with constant mental agony. Her illness was of long standing. She was nervous as a child and since the age of 16, has been constantly under medical and psychiatric care. Since then, her menses had been irregular and scanty, especially when feeling more depressed and before admission their duration was only a few hours.

She was treated in the out-patient department for two months with only very slight improvement. Antuitrin-S, 50 rat units daily was then given for about six months. She improved almost immediately after this was begun and described a feeling of relaxation after the injections, which lasted from four to five hours. At the end of a month, she was able to return to work as an X-ray technician. Her menstrual flow became more profuse. She said that she felt clearer and more relaxed and that her condition was better than at any time in the past 12 years. She maintained her improvement the whole summer and towards fall, when the permanence of her employment became uncertain, her symptoms returned. Increasing doses of antuitrin-S were without effect and she was admitted to the hospital, where she made a suicidal attempt. Emmenin for one month also resulted in no improvement in the mental state but the duration of menstrual periods was lengthened.

Discharged 3/25/33. Diagnosis: Psychoneurosis. Condition: Unimproved.



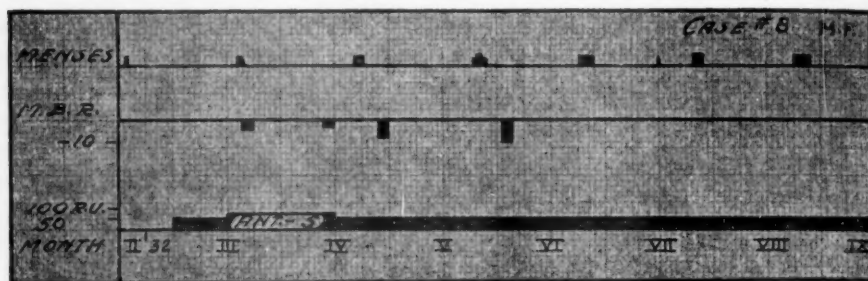
CASE No. 8. M. F., age 35, housewife, hospital No. 451, admitted 5/25/31. Six months before admission, patient became nervous and depressed, complaining of headaches and worried about financial difficulties. She made numerous complaints referable

to her stomach and gastro-intestinal tract. She thought she had many illnesses and sought the advice of many physicians.

In the hospital, she improved under a routine treatment and gained weight. Her periods became scant and accompanying them there was premenstrual tension, irritability, moodiness, headaches and nausea and vomiting.

Discharged 9/12/31. Diagnosis: Psychoneurosis—psychasthenia. Condition: Improved.

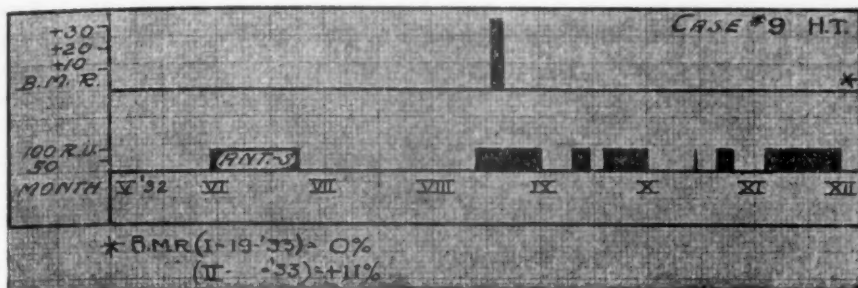
She was followed in the out-patient department and antuitrin-S, 50 rat units daily, was administered for nine months. The menstrual cycles remained unaltered but the amount of flow increased and the premenstrual symptoms became less pronounced. She has recently returned complaining of hot flushes and recurrence of her symptoms associated with her menses.



CASE No. 9. H. T., age 53, hospital No. 833, painter, admitted 5/16/32. In the past year, patient became worried over inability to find work and his financial status. Three months before admission, he began to complain of headaches, poor memory, became depressed and attempted suicide. On admission, he was extremely agitated, self-accusatory, asking to be killed, saying that he caused all the others to suffer and that he used up all the oxygen in the room and the other people would die. Antuitrin-S, 100 rat units daily, was started three weeks after admission and continued one month. The agitation and fear were still present although less marked at the time the antuitrin was begun. He improved rapidly and soon was allowed parole privileges. The agitation recurred about a month after the antuitrin-S was discontinued and he had to return to the hospital.

He was again started on antuitrin-S and within five days became much quieter and even cheerful and talkative. When the antuitrin was again discontinued, he became depressed and worried and suddenly became acutely agitated. It was again given to him for four days and the agitation cleared up in this period and he apologized for his behavior. The medication was purposely stopped and in three days the agitation returned. When it was again resumed, he immediately became quieter but shortly thereafter he again became disturbed and further medication had no sedative effect. In the last two months of his stay, without medication he quieted down and became cheerful, elated and somewhat hypomanic. His physical condition improved and he gained about 30 pounds in weight.

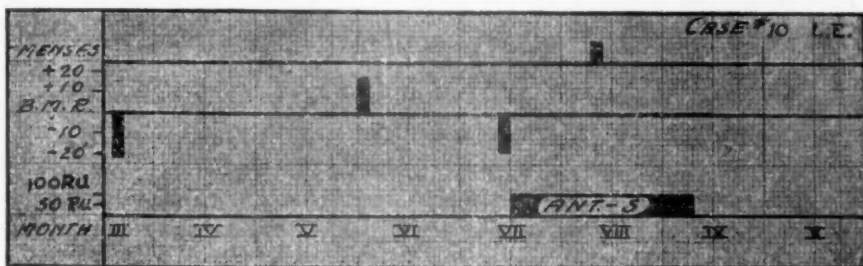
Discharged 3/23/33. Diagnosis: Involutional melancholia. Condition: Much improved.



CASE No. 10. L. E., age 44, hospital No. 1121, housewife, admitted 2/21/33. Menopause occurred three years ago and since then has suffered from hot flushes. Menses ceased entirely two years ago. Four months before admission, she became nervous, forgetful and depressed. Her behavior became erratic, saving up useless articles to give to the poor. She believed that her employer put detectives on her trail and therefore had to give up her position as clerk. She slept and ate poorly. In the hospital, she was fearful and depressed, appeared bewildered and expected punishment for sins that either she or a member of her family had committed.

Antuitrin-S, 100 rat units, was given daily for two months. Three weeks after medication was started, she menstruated for the first time in two and one-half years. Except for this there was no change and her mental condition showed no improvement.

Discharged 9/1/33. Diagnosis: Involutional melancholia. Condition: Unimproved.

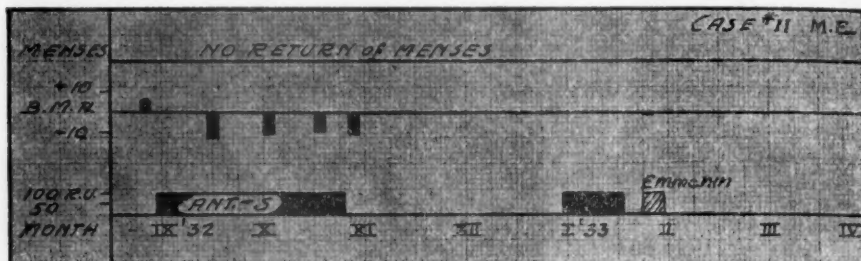


CASE 11. M. E., age 53, hospital No. 927, admitted 8/22/32. Menopause seven years ago and since that time has complained of hot flushes and periods of varying intervals of depression. One year ago she began to brood over family difficulties and complained of weakness, fatigue and feeling of self-inadequacy and unworthiness. She talked of suicide but never attempted it.

Antuitrin-S, 100 rat units daily, was started one week after admission and continued for 2 months. She improved rapidly and was allowed home on parole after three months. During her last month in the hospital, she received hypodermic injections of sterile water

but continued in the improved state. Four days after leaving the hospital her symptoms returned. She was readmitted and received hypodermic injections of sterile water for one week and then placed on the same dosage of antuitrin for three weeks. There was no improvement noted. Emmenin was also tried for one week with no effect. Patient went home on trial and did not return.

Discharged 2/15/33. Diagnosis: Involution melancholia. Condition: improved slightly.

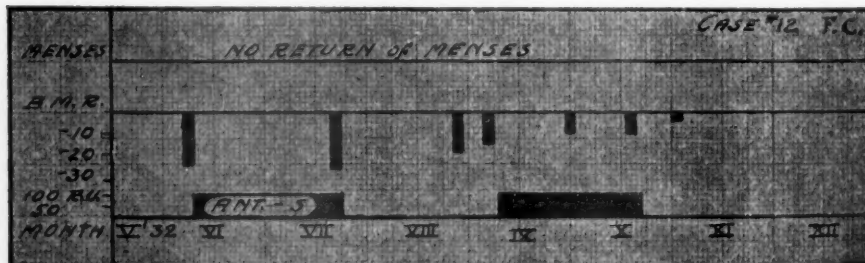


CASE No. 12. F. C., age 50, single, hospital No. 832, admitted 5/6/32. Four years ago she began to complain of gas on the stomach and pain in abdomen and a feeling of fatigue and weakness. One and one-half years ago, she received X-ray therapy for uterine fibroids followed by cessation of her menstrual periods and the occurrence of hot flashes. Six months later, after her father died, her gastro-intestinal symptoms became worse, she became worried and depressed, felt hopeless and talked of suicide.

Three weeks after admission, she was placed on antuitrin-S, 100 rat units daily. Improved slowly and after one and one-half months of medication, she was given placebos for another month when antuitrin was resumed. No notable effect resulted from these changes. She continued to improve slowly, slept and ate better, gained weight but emotionally remained unstable. There was no return of the menses.

Paroled 10/25/32. Diagnosis: Involutional melancholia. Condition: Much improved.

She has been followed for one and one-half years in the out-patient department, her complaints continue and she seems to have gotten worse and is unable to work. She has the same feelings of fatigue and weakness.



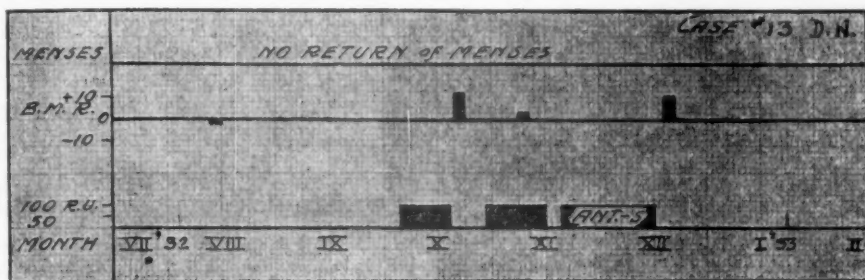
CASE No. 13. D. N., age 50, school teacher, hospital No. 891, admitted 7/18/32. Menopause occurred two years ago, 10 months before admission. After financial losses and death of two brothers, she began to find the work more difficult, complained of weakness, felt tense and depressed, brooded unnecessarily about financial matters and talked of suicide. She ate poorly and lost 25 pounds in several months. In the hospital, she appeared hopeless, expressed the wish to die, felt that she committed terrible sins and needed the electric chair. Was anxious, fearful, worried and agitated.

Physical examination was negative except for a left foot drop of unexplained origin, which cleared up in a couple of months. Laboratory data were negative.

She remained unimproved for about two months after admission. Antuitrin-S, 100 rat units daily, was administered for two and one-half months. She improved steadily.

Discharged 1/18/33. Diagnosis: Involutional melancholia. Condition: Much improved.

She was followed in the out-patient department and recovered completely, and resumed her teaching.

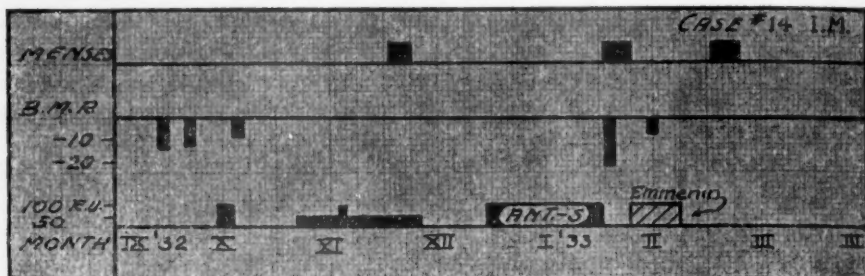


CASE No. 14. I. M., age 40, hospital No. 937, housewife, admitted 8/29/32. One and one-half years before admission, menses became irregular and scanty and she gained 50 pounds in a few months. Four months before admission she became depressed, complained of vague pains in the back and abdomen, developed delusional ideas, saw her dead mother and claimed she was being eaten by worms. She became disturbed at home, throwing herself on the floor and thrashing about in a convulsive manner.

On admission she was self-accusatory, extremely agitated, and butted her head against the wall. She asked to be burned or punished so that she could save the world and stated that she was the cause of all the trouble in the United States. She attempted suicide several times.

Antuitrin-S, 100 rat units daily, for five days, was administered with no effect. She was then placed on placebos and subsequently on antuitrin-S, 50 rat units daily. After a month of this medication, she began to menstruate. There was marked improvement for a short period following this but the agitation recurred and she was placed on the antuitrin again. No effect was noted but after the antuitrin was discontinued, she began to menstruate and again became less depressed and agitated. She was then given emmenin for two weeks and though at first she was seclusive and disinterested, she began to improve and was discharged shortly thereafter.

Discharged 2/20/32 Diagnosis: Involutional melancholia. Condition: Recovered.



CASE No. 15. A. G., age 54, hospital No. 1318, housewife, admitted 9/8/33. Menopause started in January, 1932. Her illness began about one year before admission when she began to worry about financial difficulties. She became less interested in her family, slept poorly and ate little. Six weeks before admission, she became more difficult to handle, was restless, fearful and made suicidal attempts. In the hospital she was extremely agitated, trembly and fearful. She expressed delusional beliefs that she had killed her family and that she would be killed for this.

She received antuitrin-S, 100 rat units daily, for one month and subsequently, theelin, 1 c.c. daily for one week. There was no improvement in either her physical or mental condition.

Discharged 10/27/33. Diagnosis: Involutional melancholia. Condition: Unimproved.

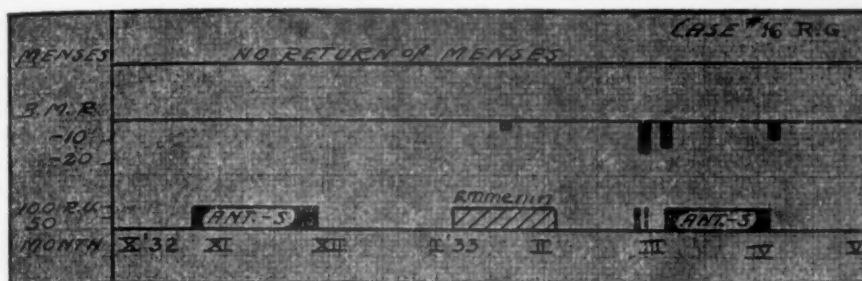
CASE No. 16. R. G., age 41, hospital No. 924, housewife, admitted 10/12/32. In June, 1932, operated for fibroids (hysterectomy with bilateral oophorectomy). Immediately following the operation, she developed insomnia. She became nervous, depressed, fearful, cried frequently and thought of suicide. She complained of hot flashes since her operation. In the hospital she was compliant and friendly but seemed depressed and frequently complained of fatigue, weakness and insomnia. Physical examination revealed an adenoma of the thyroid, the size of a golf ball, which had been present for the past 10 years with no toxic symptoms. She was given hypodermic injections of sterile water shortly after admission and 10 days later was placed upon antuitrin-S, 100 rat units daily. Medication was continued for one month with no improvement.

After an interval of 1½ months of no medication, she was placed on emmenin for less than one month. She complained this medicine made her dizzy but felt that it increased her appetite. After a possible initial improvement, she returned to the same anxious and unhappy state.

After another interval of three weeks, antuitrin-S, 100 rat units, for 5 weeks was again tried. Ten days after the beginning of medication, she began to improve but still frequently complained of feeling depressed and insecure. She continued to improve and in the last two weeks became happier and more optimistic about her future.

Discharged 4/8/33. Diagnosis: Psychoneurosis—depressed (involution ?). Condition: Much improved.

She has been followed in the out-patient department and has shown further improvement.

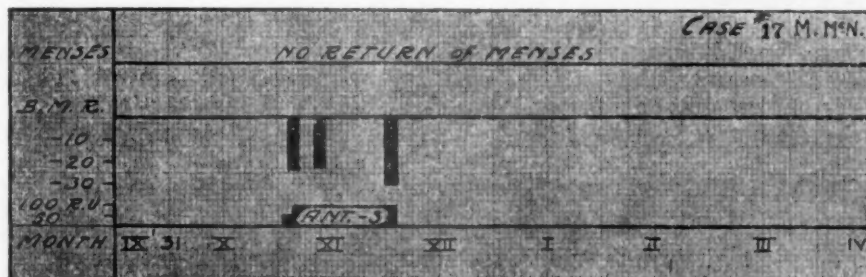


CASE No. 17. M. McN, age 54, hospital No. 575, admitted 9/15/31. Patient had her menopause 12 years ago. This was associated with a state of anxiety and depression, lasting five years and requiring hospitalization at the Boston State Hospital. After her recovery, she remained well up until six months before admission, when she became depressed, irritable, refused to eat and was suspicious of her neighbors.

In the hospital, she was anxious, depressed and worried and required tube feeding. Physical examination revealed a moderate degree of arteriosclerosis. Blood pressure was 145/100. Urine contained trace of albumin. Other laboratory findings were negative.

After one month stay in the hospital without showing any improvement she was placed on antuitrin-S, 100 rat units daily for one month. A few days after medication was started, patient stated that she felt as if a load had been taken off her shoulders and that she was feeling much better. She began to eat and seemed in good humor. After about a week, she again became depressed but not as severely as before. This lasted for several days and she became more pleasant, cheerful and cooperative. She was taken out by her family against the advice of the physician.

Discharged 11/17/31. Diagnosis: Manic-depression—depressed. Condition: Improved.

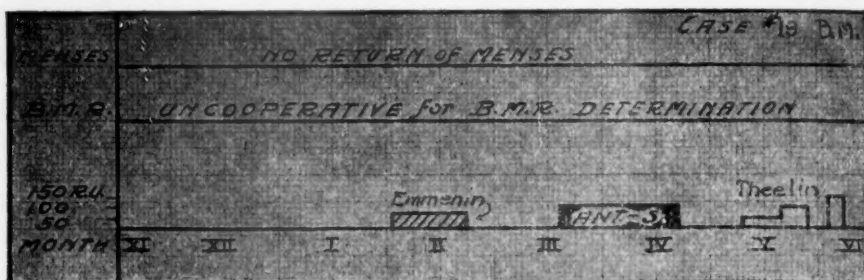


CASE No. 18. B. M., age 47, hospital No. 979, housewife, admitted 10/17/32. Nine years ago the patient had a depressive episode lasting six months. Two years ago, she had a hysterectomy and bilateral oophorectomy for uterine fibroids. Six months later she began to worry about her operation and seemed less happy. One-half year before

admission she became worse, complained of pressure in the back of her head, said that something had snapped in her brain. She lost interest in her home and family, expressed numerous somatic delusions, talked of suicide and made one suicidal attempt.

In the hospital, she was depressed, perplexed, fearful and hopeless. After two months residence, during which she showed no improvement, she was given emmenin orally but became dizzy and fainted. She therefore was given smaller doses for about three weeks. Her condition remained unchanged. She then was given antuitrin-S, 100 rat units daily for one month and subsequently theelin from 1 to 3 cc. daily for one month. There was no improvement.

Discharged 6/14/33. Diagnosis: Manic-depression—depressed. Condition: Unimproved.



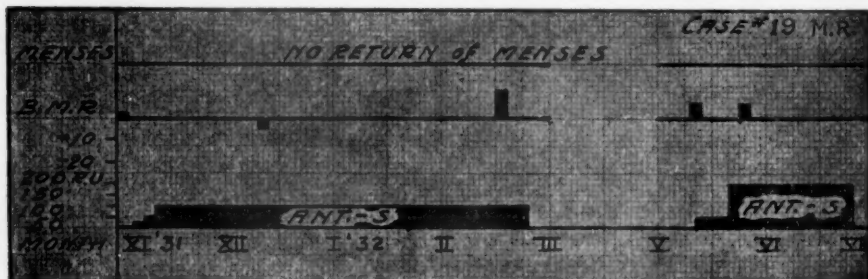
CASE No. 19. M. R., age 45, hospital No. 623, admitted 10/7/31. Patient had two previous depressive episodes, 14 and 6 years ago.

Present attack began six months before admission following trivial injury to her child. She became depressed, lost her appetite, was unable to sleep and worried constantly. In the hospital, she appeared sad and hopeless, complained of pains in her head and was irritable and impatient.

Menses had ceased at onset of illness in May, 1931. Antuitrin-S, 100 rat units daily, was given for three and one-half months, beginning one month after admission and continued until her discharge.

Two months after receiving medication, she gradually began to improve and continued to do so till leaving the hospital. She was followed in the out-patient department and after an interval of two and one-half months, owing to the presence of her previous symptoms, antuitrin-S was resumed, 200 rat units daily, for more than one month. She stated that she felt very much improved but still was not entirely well.

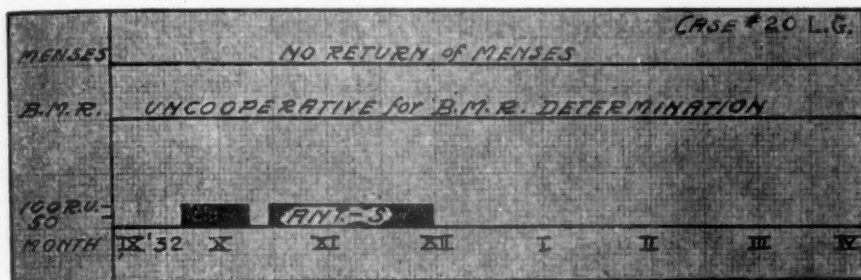
Discharged 2/24/32. Diagnosis: Manic-depression—depressed. Condition: Recovered.



CASE No. 20. L. G., age 53, housewife, hospital No. 933, admitted 8/26/32. Patient had five attacks of melancholia from 1914-1917. She remained well after the last attack till 1½ years ago. Following hysterectomy (tubes and ovaries not removed), she became depressed, worried and lost interest in her house and remained in bed.

In the hospital, she was seclusive and listless. She was retarded in speech and activity. Physical examination revealed moderate arteriosclerosis. Blood pressure was 200/120. She received antuitrin-S, 100 rat units daily for 2½ months. There was no improvement. During the last two months of hospital residence (without medication), she became slowly more cooperative.

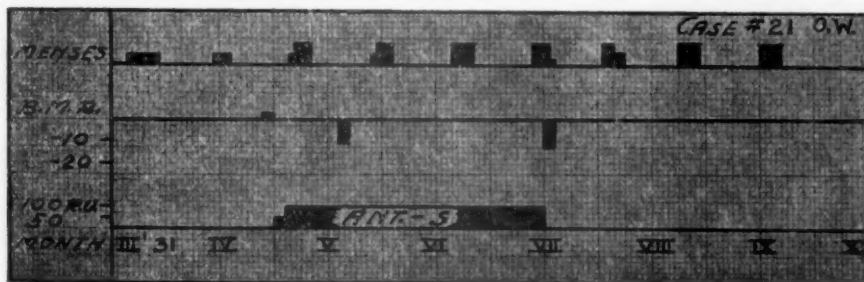
Discharged 1/26/33. Diagnosis: Manic-depression—depressed. Condition: Slightly improved.



CASE No. 21. O. W., age 41, nurse, hospital No. 331, admitted 1/12/31. For many years patient has had periods of depression of varying tensivity characterized by loss of appetite and insomnia. She was unhappy, cried and refused to see members of her family. These attacks were related to her menses and usually ended with the cessation of the menstrual period. The last attack began two months previous to admission and gradually increased in severity. She complained of nervousness, indigestion and a feeling of hopelessness.

While in the hospital, her menses were regular. Three and one-half months after admission, she was put on antuitrin-S, 100 rat units daily, which was continued for 2½ months. She felt better at the beginning of the antuitrin therapy but later reverted to the same feelings of pre-menstrual tension. The menses became more profuse while she received hormonal medication but there was no further improvement in the mental state. The cycles were uninfluenced.

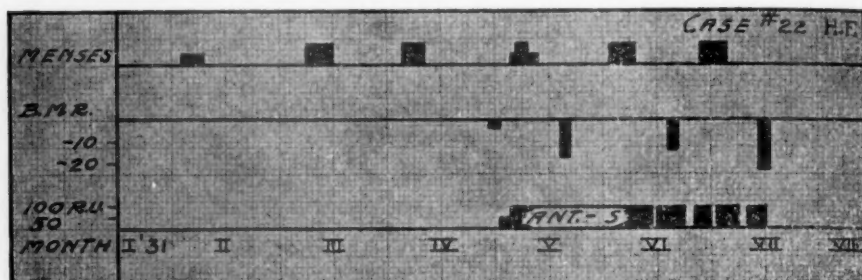
She was discharged three and one-half months later. Diagnosis: Psychoneurosis—mixed. Condition: Much improved.



CASE No. 22. H. E., age 37, housewife, hospital No. 304. Shortly before admission, patient became nervous, complained of insomnia. She was depressed, talked about suicide and made feeble suicidal attempts. She had been in several sanatoria because of her continued complaints with no improvement. She menstruated regularly.

Upon admission, she was hopeless, depressed, with numerous somatic complaints. At times, she was more agreeable and sociable. She had made a fair adjustment to the hospital when antuitrin was started. She received antuitrin-S, 100 rat units daily, for 2½ months. There was no change that could be attributed to the medication. The menses were uninfluenced except that the first period, after beginning of medication, was more profuse the first day. The menstrual cycles continue unchanged.

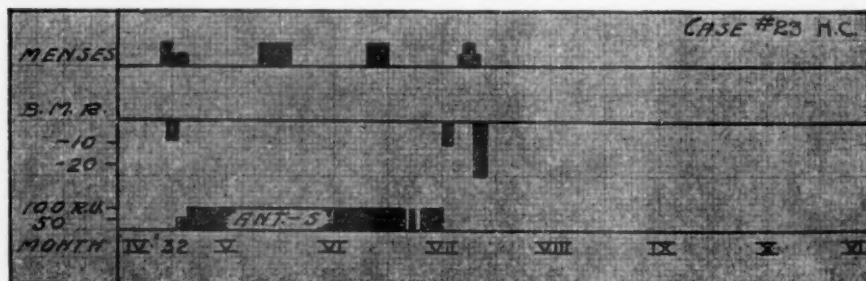
Discharged 2/3/31. Diagnosis: Psychoneurosis—anxiety. Condition: Improved.



CASE No. 23. H. C., age 41, writer, hospital No. 317, admitted 1/9/31. There was a history of two previous mild depressive episodes 18 and 13 years ago. The present condition began two years ago. The patient became depressed, unable to do her work, was worried about her finances and talked of suicide. She was at Bloomingdale from March, 1929 till July, 1930, and was much improved when discharged but again became worse several months later. In the hospital, she was depressed and agitated, at times seclusive and quarrelled with the nurses and doctors. Antuitrin-S, 100 rat units daily, was begun three months after admission and continued for 2½ months. Menses, which had been regular, were not changed except that the flow was more profuse. The cycle was unaltered.

Shortly after the beginning of the medication, she became elated and requested the medication. She was given placebos instead but continued to feel that they were benefiting her. While receiving the medication, there were frequent fluctuations in her condition but gradually she improved, became happier and more cooperative. The improved state continued after the medication was discontinued.

Discharged 8/13/31. Diagnosis: Manic-depression—depressed. Condition: Improved.

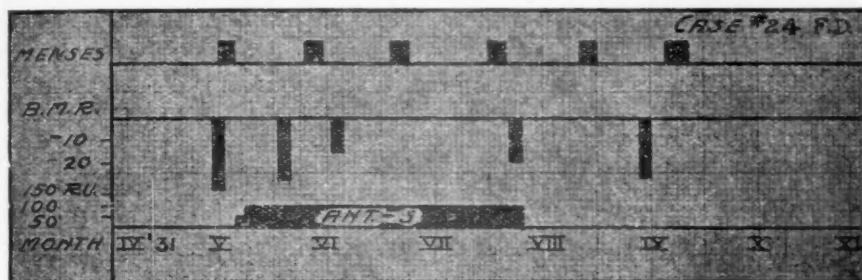


CASE No. 24. F. D., age 42, widow, hospital No. 411, admitted 4/7/31. For the past 10 years, patient has been under constant medical attention and has had 8 or 10 major operations besides numerous cystoscopic and gynecological examinations and treatment. She had illnesses similar to the present one 5 and 10 years ago. The present attack started three weeks before admission. She began to vomit after eating oysters. The vomiting was constant and she had already been prepared for another abdominal operation.

In the hospital, she was irritable and depressed with numerous complaints of headache and bodily pain. Vomited all her feedings and lost weight. Menses had continued regularly.

Antuitrin-S, 100 rat units daily, was given for about 2½ months to see if it would have any effect in diminishing her headaches and her vomiting. These were uninfluenced. Her menstrual cycle remained unchanged. There was a marked loss in weight which continued for several months beyond the cessation of the hormone treatment. Several months later, with improvement in her mental state, her weight increased and exceeded by 20 or 30 pounds her usual weight.

Discharged 2/28/32. Diagnosis: Psychoneurosis—conversion hysteria. Condition: Improved.



CASE No. 25. F. S., age 32, housewife, OPD No. 2146, admitted 1/8/32. Patient had 10 previous attacks with both manic and depressive phases during the past 10 years. In the fall of 1931 she again became depressed and attended the out-patient department until the spring of 1932. She suddenly recovered from this depression and was discharged. In the summer of 1932 there was a mild hypomanic attack and in the winter another attack of depression. She was unable to do her work, was retarded in her speech and activity. During this period of depression she was given antuitrin-S, 100 rat units daily, for two weeks and 200 rat units for 9 days. There was neither any amelioration nor aggravation of the symptoms and her depressed state continued.

Menses remained unaffected. She recovered from this attack spontaneously in the spring of 1933 and in the summer had another manic attack which required treatment in another hospital.

CASE No. 26. I. S., age 18, hospital No. 185, admitted 8/29/30. One year before admission, patient became seclusive and gave up his friends. He began to be ashamed to meet people. He developed ideas of reference and auditory hallucinations in which voices called him "fairy" or accused him of perversions.

Physically, the patient was well developed and well nourished. Height 5 feet, 4 inches,

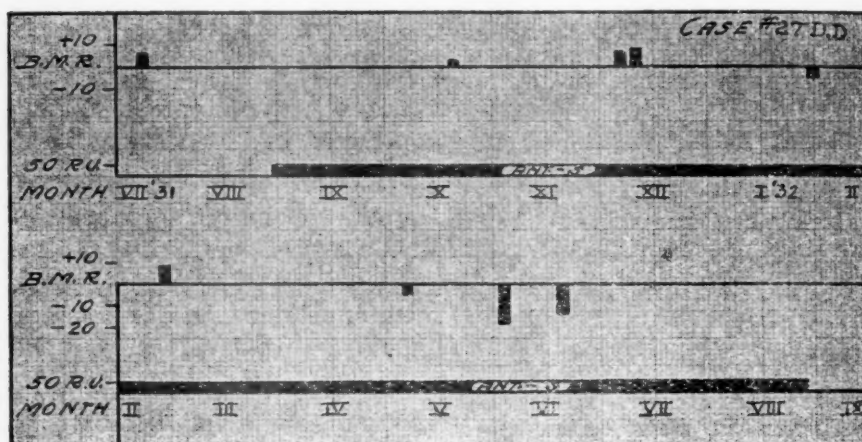
weight 124 pounds. The left testis was undescended, the right was very small, about the size of a lima bean.

Atuitrin-S from 50 to 100 R U. was administered, which was accompanied by the slight change in the gonads, as indicated in the text of the paper. His mental state remained practically unchanged.

CASE No. 27. D. D., age 23, hospital No. 198, admitted 9/19/30. At the age of 10, patient was treated for undescended testicles. Became self-conscious about this and was afraid that other boys would discover this about him. He became worried, developed many hypochondriacal complaints and was also impotent. He lost interest in his friends and girls, became self-withdrawn and talked of committing suicide.

Physically, he was of asthenic habitus with marked hirsuties of his limbs and abdomen. His testes were in the scrotum but about the size of a lima bean. He received antuitrin-S, 50 rat units daily for one year. No change was observed in the genital development or the physical condition and only slight improvement in his adjustment to the hospital routine. His feeling of fatigability and impotence was unaltered.

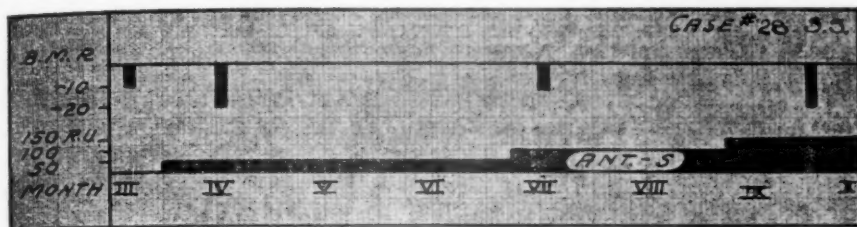
Discharged 8/21/32. Diagnosis: Dementia præcox—simple type. Condition: Improved.



CASE No. 28. S. S., age 18, OPD No. 1587, admitted 1/21/32. For years patient has been a behavior problem, borrowing small sums of money without repaying, and lying to his mother. His work at school was poor, he was irresponsible and unable to hold a job for more than a few weeks.

Physically, he was of a Froehlich type. There was a scant growth of hair of the face and axilla. His pubic hair was of feminine distribution, large breasts with pads of fat on the abdomen, small genitalia. Weight 94 kgs. Height 169 cms. X-ray of sella was normal. I. Q. 81.

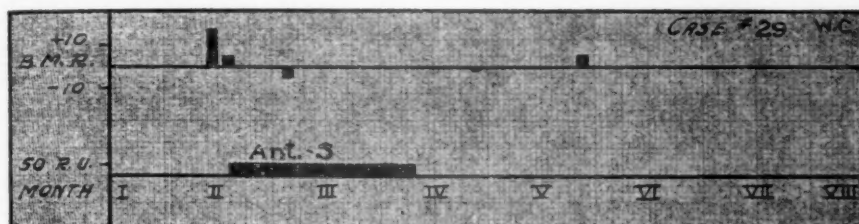
He received antuitrin-S for 6½ months. He was started on 50 rat units daily but this was increased so that the last two months he received 150 rat units per day. His weight remained unchanged. There was no effect noted in his genital development, physical state nor his I. Q. level. His behavior was slightly improved but this was probably due to psychiatric guidance.



CASE No. 29. W. C., age 12, school boy, hospital No. 709, admitted 1/14/32. Patient was a young, obese boy, who gained 20 pounds in the last three months. He was backward at school. At home, he was restless, displayed facial tics and generalized body twitchings which had persisted for several years. Physically, he was overweight (43.7 kgs.). Height 143 cms. His eyebrows were thin and he had a fatty abdominal wall. There was an undescended right testicle with small genitalia. No axillary nor pubic hair. X-ray of sella normal. He had an I. Q. of 71.

He received antuitrin-S, 50 rat units daily for 7 weeks. There was no improvement either in his genital development and physical state or mental condition.

Discharged 6/17/32. Diagnosis: Mental deficiency—borderline level with compulsion neurosis. Condition: Unimproved.



CASE No. 30. M. A., age 13, OPD No. 334, admitted 9/18/30. Since age of six, patient has been restless, pulling at his clothes, biting his nails and has had many twitchings and tic-like movements of hands, face and eye muscles. A few months before admission, he became more nervous, irritable and slept poorly. The twitchings became more marked.

Physical examination showed an obese boy with a heavy layer of fat on abdomen. The genitals were small and underdeveloped and there was no axillary or pubic hair. Intelligence level was above average—I. Q. 138. X-ray of sella turcica was normal.

He received 50 R. U. three times weekly, missing an occasional dose. There was some acceleration in growth of pubic hair and the testes felt firmer and scrotal contents was fuller, after one month of treatment. He was treated approximately four months. The resulting changes are discussed in the text, under cases with hypogenital development.

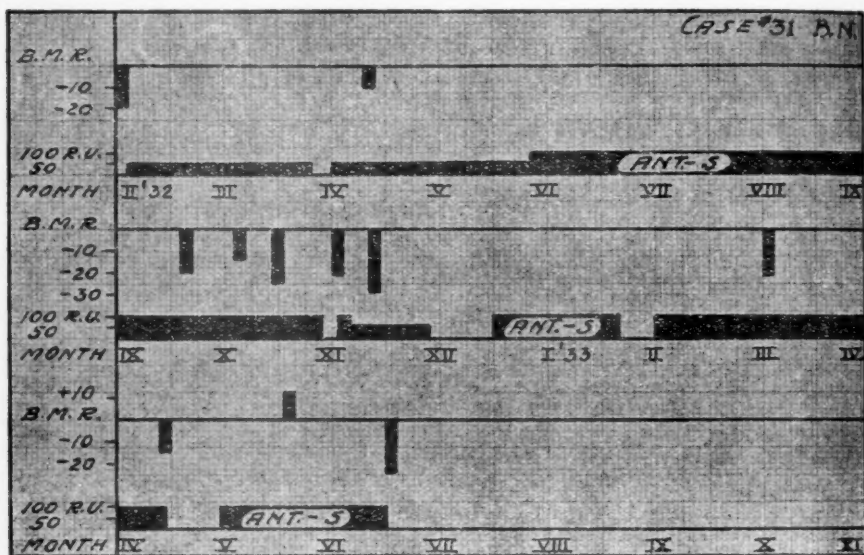
CASE No. 31. B. N., age 12, hospital No. 188, admitted 9/4/32. Following the death of a younger sister at the age of eight, patient began to cry, appeared depressed, began to gasp for air, saying that he feared he would die. He continued in this frightened

state for 1½ years. The symptoms cleared up but returned when a neighbor in the same house died about two years later. He again became frightened, destructive, displayed severe temper tantrums, assaulted his parents and could not be at home.

In the hospital, he was unclean and assaultive. He hallucinated, grimaced and laughed in a silly manner. There were alternating periods of muteness and negativism.

Physical examination was negative except for a prominent pre-pubic pad of fat. He received antuitrin-S for 17 months. For the first four months, he was given 50 rat unit doses daily and for about another year a 100 rat units daily. The antuitrin was not started until after the patient had been under observaion for about 1½ years without any signs of improvement. Following its administration, he became less destructive, more amenable, talked more readily and apparently stopped hallucinating. He continued, however, to grimace and wet and soil his clothing.

Paroled 1/4/34. Diagnosis: Dementia præcox—hebephrenia. Condition: Improved.



CASE No. 32. A. S., age 30, hospital No. 627, admitted 11/3/31. Ten months before admission, patient became nervous, dyspneic on exertion and had tremor of hands. In the past six months, symptoms increased in severity and to these were added edema of ankles, sleeplessness and rapid loss of weight—95 pounds.

Physical examination revealed a well-developed and well-nourished woman. There was a slight exophthalmus and lid lag. Thyroid was moderately enlarged and a bruit was heard over the gland. Basal metabolic rate was plus 53, while at the Presbyterian Hospital, where she had been admitted. She became agitated, restless and talked of committing suicide and was therefore transferred to the Psychiatric Institute. She received Lugol solution before being transferred and her basal metabolic rate dropped to 10.8% but subsequently rose to between plus 30 and plus 40%. She was given antuitrin-S in order to determine the acute effect of its administration upon the basal metabolism. (See table.)

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CHANGES IN PSYCHOLOGICAL FUNCTIONS IN PARESIS, I*

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Kraepelin³ stated that the distinct feature of the mental disturbances which develop in the course of general paralysis is a peculiar psychic weakness which, at one time, dominates the disease picture, at another is accompanied by delusion-formation, alterations in mood, and various states of excitement and depression. In the domain of intellect one of the first changes is often a *marked difficulty in perceiving and understanding outward impressions*. Disorders affecting retention and memory are usually profound, memory for the more recent happenings deteriorating first.

Bunker² found that the commonest early symptom noted in 42 of 74 cases of general paralysis studied was irritability or "nervousness." This manifestation is in sharp contrast to the patient's ordinary disposition. The second most common of the earliest changes is "quietness," which is the antithesis of "nervousness." The patient is described by the informant as gradually but noticeably becoming less active than is his ordinary habit. There is a diminution of voluntary attention, of spontaneous interest, of initiative, of the capacity for effort and for work. This change is described as the earliest noted in 28 cases. Other early symptoms reported were forgetfulness, 15 cases; speech defect, 11 cases; and defective judgment, 7 cases. Bunker made the point that of the foregoing symptoms only 3 are, in themselves, at all suggestive of general paralysis. These are speech, memory and judgment defects.

Osnato⁶ classified 25 cases of general paralysis according to their personality before and during the disease. He placed 14 under the classification "efficient," meaning by this term that before the onset these patients were efficient, normal, average individuals without unusual traits. In nearly all of these 14 cases the psychotic changes were limited to memory defects and some mental deterioration, both of which, according to Osnato, are expressions of destruction of brain tissue by the disease process with but few irrita-

*Abbreviated from a Master's essay, entitled, "The Psychological Aspects of General Paralysis," by Joseph Rechetnick, Columbia University Library, 1934.

tive mental symptoms. In these the physical signs dominate the picture, the mental signs being greatly subordinate. The other 11 cases showed an antithetical course. These were the euphoric, bad-tempered, explosively emotional, highly excitable paretics of the variety usually committed as insane. These patients had a pre-psychotic history of being of a distinctly irritable, excitable disposition, showing various degrees of inefficiency as workers. Four of the 11 patients had been alcoholic for years besides being inefficient workers, while two others were of a "neurotic" temperament and subject to alternating periods of depression and excitement.

Moore⁵ studied the extent to which disturbance of memory goes with decreasing ability in perception. Two measures of memory were obtained, the number of objects, pictures and words recalled immediately, and the ratio of that which was remembered after one minute to the value obtained for immediate memory. The test of perception consisted in having the patients name, as quickly as they could, objects in a picture which was laid before them. (Perception was considered as varying directly with the percentage of interpretations and indirectly with the reaction time.) Eleven cases of general paralysis were included among the subjects. The average correlation between immediate memory and perception for the 11 paretics was $+0.51$, with a range of $+0.23$ to $+0.78$. These correlations indicated that in paretics immediate memory and perception have a general tendency to deteriorate together.

Achilles¹ in an investigation of recall and recognition, in normals and in paretics, used four kinds of material; words, geometrical forms, proverbs and nonsense syllables. For 96 normal subjects the average recall score was 6.29 and the average recognition score 23.81. For 4 cases of general paralysis the average recall score was 2.00 and the average recognition score was 7.66.

In general, both clinical and experimental findings indicate: 1. Loss of memory, irritability and nervousness are fairly general initial symptoms of general paralysis. 2. The division of parietic patients into clinical types shows that despite the presence of the common factor of syphilitic infection in all, the psychological manifestations differ markedly from one patient to another. 3. Psychological investigations show that the most common changes occur-

ring during the disease are memory disturbances (in both recall and recognition) and a lowering of mental efficiency.

PRESENT INVESTIGATION

One hundred case histories of patients suffering from paresis, who had been treated at the New York State Psychiatric Institute and Hospital, were read. Only those cases with a clear diagnosis of general paralysis and on which the discharge note gave a definite statement of either improved or unimproved were included. In 80 cases treatment consisted of radiotherm pyrexia. In the remaining cases malarial treatment was used.

The results of the psychological examination, taken by the standardized procedure of Kirby,⁴ may be summarized as follows.

RESULTS OF PSYCHOLOGICAL EXAMINATION SHORTLY AFTER ADMISSION

1. Attitude and General Behavior

Normal	Abnormal
65	35

2. Stream of Mental Activity

Normal	Underproductive	Overproductive
29	41	30

3. Affect and Mood

Normal	Depressed	Euphoric
20	38	42

4. Content of Thought

Normal	Delusions and Hallucinations
62	38

5. Orientation

Good	Fair	Poor
33	38	29

6. Remote Memory

Good	Fair	Poor
40	32	28

7. Memory of the Recent Past

Good	Fair	Poor
42	24	34

8. Retention and Immediate Recall

Good	Fair	Poor
10	30	60

9. Counting and Calculation			
Good	Fair	Poor	
20	30	50	
10. Reading and Comprehension			
Good	Fair	Poor	
22	30	48	
11. Writing			
Good	Fair	Poor	No Sample
24	13	39	24
12. Insight and Judgment			
Good	Fair	Poor	
15	23	62	

Retention and immediate recall, in which there was impairment in 90 of the cases (in 30 slightly impaired and 60 severely impaired), insight and judgment with an impairment in 85 cases, and counting and calculation which are impaired in 80 cases, are the psychological functions most affected in the early stages of the disease. It is further significant that of all the various factors, retention and immediate recall and counting and calculation are the least dependent upon the subjective judgment and personal equation of the doctor who made the examination. Tests of retention and immediate recall included the digits test, Marie's 3-paper test, paired associations and the recall of a series of test objects after a period of 5 minutes.

With regard to the results of the psychological examination after treatment we find the factor of retention and immediate recall once more assuming an important rôle. An examination of the various factors with regard to their condition before and after treatment shows marked differences for the factor of retention and immediate recall which no other psychological function shows to any impressive degree. We might say that *as retention and immediate recall go, so goes the improvement*. The results of our findings are summarized in Table I.

The figures for retention and immediate recall show that if after treatment the patients' ability was improved, then in 46 cases the patient was discharged as improved and in 4 cases was discharged as unimproved. On the other hand if, after treatment the patients' ability for retention and immediate recall remained unimproved,

TABLE I. RELATION OF IMPROVEMENT IN CERTAIN PSYCHOLOGICAL FUNCTIONS TO GENERAL IMPROVEMENT

		Retention and recall	Insight and judgment	Affect and mood	Orientation	Counting and calculation
Condition of patient on admission	Normal	10	15	20	33	20
	Poor	90	85	80	67	80
Improvement or unimprovement		I U	I U	I U	I U	I U
Condition of patient on discharge	Improved	46 4	29 16	32 14	45 29	31 15
	Unimproved	8 42	25 30	22 32	9 17	23 31

I=Improved. U=Unimproved.

then in 42 cases the patient was discharged as unimproved and in 8 cases was discharged as improved. The much less apparent relation between any of the other factors and the prognosis of general paralysis is illustrated by the factors of insight and judgment, affect and mood, orientation, and counting and calculation as shown in Table I.

SUMMARY

1. The findings of the present investigation of 100 cases of general paralysis agree with the findings of previous investigations with regard to the importance of memory disturbances as the prime psychological change in the early stages of general paralysis.

2. Other changes occurring during the disease are, in order of generality of occurrence: impairment of insight and judgment (85 cases), impairment in counting and calculation (80), abnormality in affect and mood (80), impairment in reading and comprehension (78), abnormality in stream of mental activity (71), impairment in orientation (67), impairment in memory of the recent past (58), impairment in remote memory (55), impairment in writing (52), abnormality in content of thought (38), and abnormality in attitude and general behavior (35).

3. The present summary shows that improvement in retention and immediate recall is the most important (or apparent) psychological change occurring during the course of the recovery following treatment.

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CHANGES IN PSYCHOLOGICAL FUNCTIONS IN PARESIS, II

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Many interesting psychological problems grow out of the fact that patients who are suffering from general paralysis make marked improvement and even recovery following radiotherm or malaria treatment. The fact that these individuals, in whom presumably there has been some destruction of cerebral tissue, are able to resume their place in society, argues that there has been some major reformulation of psychological functioning following the arrest of the disease process. If we could but obtain some knowledge of the mechanism of this reformulation, we should have made a great stride forward in our knowledge of the organization of everyday mental life.

Because of the very wide range among paretic patients of intellectual ability, motor coordination, and general psychological functions which show a loss, any study of mental deterioration and recovery must make use of a wide diversity of test performances and materials, and each unit of the battery of tests must have a wide range of applicability. Since practically no work has been done in this field showing what functions are most susceptible to measurement, we collected as wide a range of tests as possible and have used them in an arbitrary fashion. The tests used most extensively included the Army Alpha Intelligence Test, two multiple choice modifications of the Kohs Block Design Test, a test of associative learning, a simple maze, a modification of the Yerkes multiple choice apparatus, and a tapping speed test. The associative learning and the modification of the Kohs test were especially designed to meet the difficulties encountered in administering mental tests to paretics. However, our inability to standardize these procedures satisfactorily plus the difficulty in reducing the accumulated data to terms which would make comparisons possible, forced us to discard this material. During the earlier part of the testing program we made use of 8 or 10 other psychological test measurements

but discarded them after a few trials, since they were found to be unsuitable because of unreliability, difficulty of administration to bedfast patients, etc.

Between November, 1931, and May, 1933, 35 patients were given these psychological tests before and after the pyrexia treatment, which was radiotherm in the case of 31 patients at the Psychiatric Institute and malaria in 4 cases at the Manhattan State Hospital. A number of patients in addition to these 35 were tested, but since we were unable to obtain complete data because of lack of cooperation or physical condition, their results are not included in the present summary.

INTELLIGENCE

The Army Alpha Intelligence test gave some indications of improvement in mental function following the pyrexia treatment. In 16 patients who were given equivalent forms of this test before and after treatment, the average score of 48 was raised to 68 points; a gain of 20 points. By statistical conventions this gain is reliable. However, from other evidence we believe that part of this gain was due to the patient becoming accustomed to the testing situation and giving better cooperation on the second trial. This is further complicated by the known fact that a certain amount of learning takes place between test and retest. We concluded, therefore, that although an increase in apparent intelligence was shown, part of the increase must be due to factors other than recovery following the fever therapy.

MOTOR COORDINATION

We used the performance on one of Foster's simple mazes in which all blind alleys were blocked, as an indicator of motor coordination, rather than of learning ability. The patient followed the path through this maze with a hand stylus while watching his own progress. Four trials were given at each test period, two with either hand, and the total time taken to go through the maze was called the score. For 15 patients on whom complete records were obtained, the average time for the 4 trials before treatment was

44.4 seconds, and was 32.1 seconds after treatment, a gain of 12.3 seconds. For 13 patients who were given two trials before treatment (these trials were separated by an interval of 2 or 3 days instead of 2 or 3 weeks in the case of the treated patients), the average was 33.8 seconds for the first trial and 29.4 seconds for the second trial, a gain of 4.4 seconds. This shows that the improvement in motor coordination following fever treatment can be attributed in large part to the recovery following pyrexia.

SPEED OF REACTION

Speed of tapping, tested by means of a small hand counter, constituted the measure of the speed of reaction. Four trials of 30 seconds each were given at each test period. For 15 subjects the initial average was 348.8 before treatment and 367.0 after treatment, a gain of 18.2. For 13 patients who were given the test twice before treatment the average rose from 351.5 to 363.4, a gain of 11.9. The improvement of the treated patients, in spite of the longer interval elapsing between trials, is an indication that some of the improvement is due to the recovery following treatment.

EFFECT OF REPETITION OF THE TESTS

As many of the tests as possible were repeated on the patients at intervals of 1, 2, and 4 weeks after the conclusion of the fever treatment. Gradual improvement in all functions was noted, but we have found it impossible to determine from our data how much of this improvement was due to practice or learning and how much could be called true psychological improvement. That practice effect was an important factor was shown in the case of two patients who were retested approximately one year after the conclusion of their original tests. In both cases, although each was showing definite clinical improvement, the general performance on the psychological tests was not as good, after a year of elapsed time, as it had been during the several weeks following the original treatment, when they had had the testing program repeated at fairly regular intervals. However, in each case the psychological per-

formance at the end of a year did surpass their initial records before treatment.

CONCLUSIONS

Paretics show considerable improvement in psychological test performance following pyrexia treatment. This is evidenced by the improvement in intelligence test scores, motor coordination, and speed of reaction. Much of this improvement is undoubtedly due to learning and practice plus increased cooperation which the patient shows when he becomes accustomed to the testing situation. However, there is evidence indicating that the fever treatment does cause improvement in actual mental ability as measured by psychological tests. We plan to continue this work with more refined measurements.

THE VALUE OF AN ORIENTATION LETTER FOR NEWLY-ADMITTED PATIENTS*

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INTRODUCTION

It is a common observation, recently stressed again,¹ that the patient who for the first time enters a hospital for mental diseases is very much in need of information and reassurance as to the character and purpose of the institution. Active behavior in a new situation is usually preceded by a process of orientation. In the case of coming to a mental hospital the need for orientation is even more imperative because of the apparently threatening character of the situation. If no early explanation of the character and purpose of the institution is given to the patient, the bars on the windows, the locked doors, and the strangeness of many procedures may disturb him and raise his apprehension to such an extent that the obstacles placed in the way of therapy are considerably increased. At the same time the limitations under which he is placed prevent him from getting all the information which he needs by himself. Special help of this kind should, therefore, be given him.

At the Worcester State Hospital systematic attempts are being made to meet this need of the patients for orientation. One of the many measures devised for this purpose consists of an orientation form letter from the superintendent, Dr. William A. Bryan, by whom it has been composed. This is given to each newly-admitted patient. At the time of the present investigation this letter was as follows:

Dear Sir (Madam):

As the superintendent of this hospital I wish to welcome you here and to express my concern for all that pertains to your welfare and comfort. We want you to become acquainted and feel at home as soon as possible. Perhaps it may help you to do this if I tell you something about our hospital.

You have probably already noticed that this is a large institution. There are seventeen hundred patients in this building and a great many employees.

The ward you are on now is called

*From the Psychology Department of the Worcester State Hospital.

1. Dewey, Richard: First Aid to the Newly-Arriving Patient in the Public Hospital for Mental Diseases. *Amer. J. Psychiat.*, 1933, 13, 299-301.

The nurse in charge of the ward is

The physician in charge of your case is

This hospital is an institution maintained for those who are suffering from nervous and mental difficulties. You have been sent here because your friends have thought that you were in need of help. The law provides that persons who are mentally ill be sent here for observation, sometimes for ten days, sometimes for thirty-five days, and if that time is not sufficient to restore you to your usual condition you may have to remain here until you have fully recovered. Your physician can tell you by what legal authority you are here. If we find that you are not in need of treatment you will not be detained, but we are expected to investigate the matter thoroughly and we hope that you will not be impatient while you are awaiting the results of our examination.

You will receive a thorough physical examination, and no effort will be spared to determine exactly what treatment you require. If you should go on your own responsibility to all the physicians who take part in this examination the fees would cost you a considerable amount. Of course, it will be to your own advantage to give us cooperation during the examinations even if you do find it somewhat tiresome.

You will be given a general physical examination. A specimen of your blood will be taken from your arm for laboratory analysis. Your teeth will be examined in the dental office and you will receive any dental service that you require. Your eyes, nose and throat will be examined in another room, and it may be necessary to take an X-ray of some part of your body. These examinations are painless and we hope that you will not be disturbed because of the strangeness of the procedure.

The doctor in charge of your case will have long talks with you in order to find out something about your mental life. We want to understand you, not because we are inquisitive but because we want to help you. We have to ask questions of an intimate and personal nature because all these things have a bearing upon the illness which made it necessary for you to come here. We hope you will be perfectly frank and tell us what you have been thinking and worrying about. If it is easier for you to write than to talk the attendant will give you a pencil and paper and you may write a letter to your physician. This should be given to the doctor when he comes on the ward and your story and thoughts will be confidential between you and your physician.

You will be visited by one of the social workers, who is prepared to carry out requests which you may make in regard to matters outside the hospital. She will be glad to keep you in touch with your family and is in the hospital for the purpose of getting a contact established between the organization and members of your family. When you are well enough to leave the hospital it will be her privilege and duty to assist you in establishing yourself in the community by helping you to secure a position. She will, at all times, be ready to consult with you relative to your future, and we invite your fullest cooperation with her.

After your physician has done all he can to come to an understanding of your condition, you will be given the opportunity to tell your story to the entire medical staff of the hospital, and other physicians may ask you a few questions. The whole matter under consideration—the question whether you are well enough to go home or whether you should remain in the hospital for further treatment—is too important to be left to the judgment of any one man, and a decision based upon the knowledge of a number of people will be more satisfactory both to you and to your friends. All the members of the staff are interested in your welfare and will give careful thought to the recommendations offered by your physician.

All treatment given you is what has been directed by your physician. You will be kept in bed for the first two days in order to make it easier to determine your exact physical condition. You will be given medicine if you need it, and you may be given packs or continuous baths. These treatments are prescribed only when patient's condition requires them. They should be perfectly comfortable. Any discomfort resulting from treatment of whatever type should be reported promptly to your physician. Any feeling of physical discomfort or indications of illness should be reported at once.

As soon as you can be up and dressed your physician will arrange that you be given something to do. At first it may be nothing more than assisting with the work of keeping the ward neat and orderly but later when he knows you better he will try to find some regular work for you. We maintain a large corps of occupational aides. These young ladies may be distinguished by the blue uniforms they wear, and the physician may prescribe some definite handicraft work under the guidance of these aides. If you will tell your doctor what kind of work you prefer, he will be glad to take your wishes into consideration as far as possible. We know that any occupation for which you are physically fit will be better for you than sitting about with nothing to do but think about your troubles. If you show yourself ready to cooperate with us and willing to work efficiently and able to make life worth living both for yourself and those about you, you will have chosen the surest way to convince us that you have found the secret of mental health.

We have an excellent library and I hope you will take advantage of it. Books can be procured by speaking to the nurse on your ward. Church services are held each Sunday in the hospital chapel. The Catholic service is held at 9 a. m.; the Protestant at 10:15; Episcopal service is held once each month, and the Jewish services are held twice a month on Sunday. During the winter months a motion picture entertainment is held on Wednesday evening. There is always a dance on Monday evening. Other entertainments are given at frequent intervals. We hope you will be on friendly terms with other patients, and that you will enjoy social gatherings. As soon as you are up and dressed you will take your meals in the hospital cafeteria. We are making every effort to give you good palatable and attractive food of a wide variety. We wish you to have all you can eat, and when you begin to go to the cafeteria please go back to the counter as many times as you wish for more. I only make the request of you that you do not waste food.

If you have any money it will be placed in the Treasurer's Office for safe keeping. Every Monday a list of store orders is prepared, and patients who have money on deposit can order materials, fruit, candy and tobacco. These should be ordered through the nurse in charge of the ward. Pipes and tobacco are furnished for those who have none. If you wish to smoke please ask the attendant to take you to one of the porches where smoking is permitted, and give you a light. Because of the danger of fire we ask you not to attempt to smoke on the wards or to carry matches, and I trust you will respect this rule which is necessary for the safety of all. You will be allowed to have your own clothes as soon as they are ready for you. It is necessary to take the clothes you have to the office of the clothing supervisor in order to properly list them, and to see that they are plainly marked so that nothing may be lost. You may write two letters each week at the expense of the hospital, and more if you are prepared to furnish your own writing materials and the stamps. Please let your letter remain open so that your physician can read them. We are obliged to inspect letters written by patients, but we

always send them unless they are foolish or indecent. Letters sent to you by your friends will be given to you unopened.

It is a great pleasure to give the freedom of the grounds to those who can be trusted not to abuse this privilege, but of course we do not think it best to place any patient on an open ward until we know him well, and feel sure that he can be trusted. This is a privilege to be earned.

If you wish any information not found in this letter do not hesitate to ask for it. Your wishes will always receive consideration and we are glad to grant any reasonable request, if we can do so without injustice to others. If you have any suggestions or criticisms as to your treatment or to the treatment of those about you, please speak to your physician or write a personal letter to me. It is my earnest wish that you be as comfortable as possible while you are here, and I want to assure you that the entire hospital personnel is ready and anxious to do all in their power to hasten your recovery. This can be materially expedited by your earnest cooperation and an effort on your part to look upon us as friends who understand and are anxious to help you.

Sincerely yours,

(Signed) WILLIAM A. BRYAN,
Superintendent.

The purpose of the present study is to inquire into the effectiveness of this way of orienting the patient, i. e., to check whether the letter is actually read and understood, what effect it has on the patient, how far it satisfies his needs, which points if any, are unsatisfactory, and how they might be improved.*

The usual procedure was for the letter to be sent from the clerk's office to the admission ward on the day following admission and to be left with the patient by the nurse. For the purpose of this investigation the procedure was modified. The letter was delivered by two psychological observers who acted as messengers. The details of the method used were as follows:

The observers brought the letter to each new patient on the first day after his admission. It was suggested to him that he read it and ask the observer any questions he might have. During the reading one of the observers sat facing the patient. She answered his questions, read the letter when he was not able to do so, or reassured him if he was fearful or excited. However, if no help was required from her the observer remained passive. In each case the situation was determined by the behavior of the patient and was kept clear from any resemblance to an examination. In spite of

*This study which deals with one practical problem is part of an extensive investigation of the psychological situation of the patient in a mental hospital. The theoretical discussion of the situation of the newly-admitted patients will be given in a separate publication.

this fact (or more likely because of it) the patients often became quite open and communicative. The other observer remained in the background and took notes inconspicuously. Specially prepared blanks were used which permitted the registration of the remarks of both the patient and the "active" observer about the various paragraphs of the letter. The patients were usually so absorbed in the reading that they paid little attention to the note-taking of the "passive" observer.

THE READING AND COMPREHENSION OF THE LETTER

The letter was given by the observers to 100 newly-admitted patients evenly divided as to sex. No special selection of the subjects was made, the admissions investigated being practically consecutive. Table I gives the distribution according to diagnosis. The group is fairly representative of the hospital population. Of greater importance for this study is the distribution according to institutional status (Table II). This table shows that over half of the cases are persons who have come to a psychiatric hospital for the first time in their lives. One-third are readmissions who have already been hospitalized one or more times, and are, therefore, acquainted with the general routine of a psychiatric hospital. An intermediate position is occupied by the group of patients who come from the Boston Psychopathic Hospital, where they had been studied for a short period of time, and who are, therefore, not unfamiliar with the environment of a psychiatric hospital.

The first points to consider are the extent to which it was possible to convey the contents of the letter and the methods by which it was achieved. Tables III and IV give the analyses of these aspects.

Table III shows in how many cases the letter was and in how many it was not communicated to the patient, and gives the reasons why the communication did not take place. We find that the letter was actually communicated to more than three-fourths of the investigated group. The percentage would be even higher if interpreters were available for the foreign-born patients, as in many of these a strong desire for information was present but could not be satisfied.

708 VALUE OF AN ORIENTATION LETTER FOR NEWLY-ADMITTED PATIENTS

TABLE I. POPULATION STUDIED, BY DIAGNOSIS

	Male	Female	Total
Senile psychoses .....	..	5	5
Psychoses with cerebral arteriosclerosis	3	2	5
General paralysis	2	5	7
Psychoses with other brain or nervous diseases	2	..	2
Alcoholic psychoses	8	..	8
Psychoses due to drugs and other exogenous toxins	2	..	2
Psychoses with other somatic diseases	1	4	5
Manic-depressive psychoses	6	5	11
Involution melancholia	1	..	1
Dementia præcox (schizophrenia)	8	11	19
Paranoia and paranoid conditions	2	3	5
Psychoneuroses and neuroses	3	2	5
Psychoses with psychopathic personality	1	2	3
Psychoses with mental deficiency	2	2	4
Undiagnosed psychoses	1	..	1
Without psychosis	8	9	17
Total	50	50	100

TABLE II. POPULATION STUDIED, BY INSTITUTIONAL STATUS

	Male	Female	Total
First admission	27	26	53
Readmission or transfer from other mental hospitals.....	15	18	33
Transfer from Boston Psychopathic Hospital	8	6	14
Total	50	50	100

TABLE III. READING OF THE LETTER

	Male	Female	Total
Letter read	40	37	77
Reading omitted because of:			
Language difficulties (letter not understood).....	3	3	6
Poor physical condition (letter not listened to).....	2	3	5
Patient a readmission case (letter known)	2	1	3
Acute psychotic state (letter refused).....	1	2	3
Total	8	9	17
Reading postponed because:			
Patient wants to wait for relatives .....	..	3	3
Patient wants to read later by himself	2	1	3
Total	2	4	6
Grand total	50	50	100

In nearly half of the cases in which the communication took place, the help of the messenger was required for the reading. Table IV shows how often and for what reasons the messenger had to read the letter. Only in one-fourth of the cases (Groups 4-6) the condition interfering with the reading was related to the patient's mental state, and of these patients only a small fraction (group 6) showed no spontaneous interest in the message. The large majority of the patients were very eager to read it and needed the help of the messenger for purely technical reasons (Groups 1-3).

TABLE IV. READING BY PATIENT AND BY MESSENGER

	Male	Female	Total
Letter read by patient	25	18	43
Letter read by messenger because of:	15	19	34
1. Absence of glasses	5	4	9
2. Illiteracy	2	3	5
3. Poor physical condition (weakness, headache, sore eyes, blindness)	5	6	11
4. Difficulty in concentrating on reading	1	3	4
5. Letter read hastily by patient and re-read by messenger to secure optimum understanding.....	..	2	2
6. Patient not anxious to read but tolerates reading by messenger	2	1	3
Total	40	37	77

The next question concerns the extent to which the letter read by the patient or by the messenger was actually understood by the patient. Light on this point is given by Table V. The cases were assigned to one of first three categories on the basis of the comments and questions registered. The four cases where such comments were completely lacking are classed as "uncertain." The table shows a high percentage of understanding. Single paragraphs, however, frequently remained unclear and had to be explained by the messenger.

TABLE V. COMPREHENSION OF THE LETTER

	Male	Female	Total
Whole letter understood	32	29	61
Letter partly understood	4	4	8
Letter not understood	1	3	4
Uncertain	3	1	4
Total	40	37	77

Summarizing this survey we find that the contents of the letter were actually communicated to at least 77 out of 100 patients, and were understood completely or partly by 69 of them. In 34 cases communication would have been impossible without the help of the messenger. The presence of the messenger thus materially increased the effectiveness of the letter.

THE VARIOUS FUNCTIONS OF THE LETTER

For the proper evaluation of the rôle of the letter, a determination of the degree of comprehension is not sufficient; the nature of the comprehension should also be considered. We tried to determine by a study of the patients' responses what meaning the letter had to them and found that it was different for different patients. The various functions of the letter may be described as follows:

1. With some of the patients the strongest desire of the moment is for orientation. Many of them come to the hospital not knowing where and why they are brought. By the time the message reaches them they usually know the name and the character of the hospital, as such information is invariably given by the nurses. However, they are still ignorant of many other facts which are of the utmost importance for them. They, therefore, welcome the letter as a source of *information about the basic facts of hospitalization* such as the reason, the purpose, the exact duration of the hospitalization, their legal status, the consequences that the stay in the hospital may have for their work outside, the cost of hospitalization, etc. The letter satisfies a very fundamental need of these patients—it enables them to survey the situation and thus greatly reduces their uncertainty. They often make appreciative remarks about the message, saying that it explains everything to them. Very frequently the patients who have spent 24 hours in the hospital already have quite definite hypotheses concerning the important factors of the hospital situation. The letter gives them only the final confirmation of what they already know or have guessed.

It is notable that even purely descriptive paragraphs, devoid of all personal implications, may have an immediate and marked effect on the patient's attitude. They tend to make his narrower personal view of the situation recede in favor of a wider and more

objective one. A striking example is the paragraph dealing with the size of the institution. The impressive number of 1,700 patients invariably produces a response of appreciative astonishment which finds expression in repetition of the number, in whistling, in ejaculations, like: "Oh my! What a number!" etc. The patient seems to be overwhelmed, impressed, and even pleased by the importance of the institution, of which he has become, though involuntarily, a member. The paragraph giving the names of the ward, physician, and nurse, while not impressive in the same degree, raises a most lively interest and leads to a great deal of questioning about members of the staff and the organization of the hospital. The patients generally ask these questions quietly, without any display of emotion, with an apparent wish to become oriented in the hospital. Thus the objective information about the hospital has an additional value in so far as it tends to reduce the emotional disturbance of the patient with all its undesirable consequences.

2. Other patients show the strongest interest in the paragraphs describing the *life inside the institution*. They ask questions about such topics as food, entertainment, church service, choir, library, visiting days, and express appreciation of the large scope of the information provided, saying, "It is a beautiful letter; it covers everything!" This type of interest usually occurs when the general orientation has already taken place and the newcomer is in a position to investigate his new surroundings more quietly and in detail. Most often this type of behavior is encountered in cases of readmission or of transfer from other institutions. The few patients who on first admission showed an interest only in the minor details of the institutional life, without being at all concerned in questions that had a real importance for their life as a whole, were found to be in the mentally deficient group.

3. Another group are interested mainly in the *rules and directions* for the patients' behavior in the hospital, suggested by the letter. In response to the letter they express their willingness to follow the orders, saying, "I guess I'll try and obey these rules, that is all." On reading the rules regarding smoking, one patient who was quietly studying the letter became quite restless and confessed: "I did not know about this rule, so I just smoked out

there!" This conception of the message seems to go hand in hand with a belief in the helpful intentions of the hospital, as some of the remarks clearly show: "I hope to go home soon, but as long as I stay they are treating me well."

4. A fourth group of patients see the letter merely in the light of their wish *to leave the hospital* and study it for clues as to how this purpose may be achieved. They therefore do not pay much attention to the paragraphs describing the life inside the institution, but select those describing the behavior that may eventually lead to leaving the hospital. They are much concerned with the sections referring to willingness to work as an indication of mental health, and dwell on the pleas for cooperation. They nod assent to every paragraph, ask for detailed explanations, and sometimes express the fear that they will not be able to do what is expected of them. However, they are willing to try their best and respond to the request to be frank with the psychiatrist by saying: "They can ask me any questions, I will tell them everything; I want to go home."

5. In one group of patients the response to the letter differs from those previously described, as it does not seem to be in agreement with the actual position of the patient in the hospital. This attitude might be termed *detached criticism*. The patient seems to assume the rôle of a benevolent observer who is interested in knowing all about the institution; he asks questions, makes critical and appreciative comments on the contents of the letter, at the same time completely dissociating himself from other patients. "Can those people who are out of their mind dance?" "No, it is not right (that the patients should be examined physically); it makes them more nervous. As they come here they are nervous enough." "As for the social worker, that is very nice, an excellent idea." They even add their own suggestions: "At every bed there should be a button for the patient to ring. The nurse should be prompt in answering," etc. The rôle of the letter in these cases of detachment of the individual from his actual situation requires elucidation. A closer acquaintance with these patients often reveals that this detachment is based on the fact that they are afraid of the stigma attached to hospitalization, and are, therefore, reluctant to admit their actual status as mental patients. This general

attitude makes it clear why they enjoy the reading of the letter as they do, indulge in the discussion of the individual topics with the messenger, and frequently give expression to their satisfaction with the letter. The mere fact of getting a letter of this kind is for them a sign of being credited with the ability to understand and with rational conduct. The letter is therefore valuable even in the case where it seemingly fails to achieve its main purpose in that it both reassures and pleases the patient.

6. By some patients the letter is primarily evaluated as a *sign of personal contact with the superintendent*. They seem reassured and even flattered, send messages to the superintendent, and want to express their gratitude personally to him. This attitude toward the letter is to be valued very highly, even though in its exaggerated form it sometimes leads to misunderstandings. The patient in this case considers the letter to be a personal communication from the superintendent, and if this conception is shattered by some obvious incongruity during the reading, he is greatly disappointed and the effectiveness of the letter is diminished. It seems therefore best, while preserving the personal tone of the message, not to conceal the fact that it is only a form letter sent to every new patient.

7. In a few isolated cases the patients look to the letter for *assurance of mental or physical cure*. They dwell on the description of the physical examination and treatment, or stress appreciatively such points as the therapeutic value of work or the invitation to be frank with the psychiatrist, asking: "Will they help me?" These patients are strongly influenced by the encouraging and friendly tone of the letter and emphatically express their particular gratitude to the author and to the messenger, saying: "That's a very pleasant letter, very pleasant letter, yes!" "It helps if people are talking kindly to you." The interesting thing to note about this type of response is its extreme rarity. Obviously, it is the exceptional instance in which the mental hospital is looked upon by the patient as a place of cure.

8. In some cases, especially with patients who are strongly opposed to hospitalization or are in a generally depressed or apprehensive mood, the function of the letter may be practically the re-

verse of the one described last. Its contents force the person to face once more all the limitations of his situation, and the letter seems to him to be a *final confirmation of his insanity or of his permanent incarceration*. This interpretation may result in emotional protestations against various paragraphs, in a state of increased apprehensiveness or even of complete despair: "Who ever thought I would be here?" "Thirty-five days? Oh, dear! I will die before that!" This emotional disturbance arises chiefly from the implication of mental disease or of a prolonged stay in the hospital. It was most frequently evoked by the paragraph discussing the psychiatric interview and the one concerning work in the hospital.

The paragraph about the psychiatric interview suggests more than any other the mental character of the patients' trouble. The mention of "the illness which made it necessary for you to come here" in connection with the request to tell "what you have been thinking and worrying about" raises the indignation of the patient. "Well, that gets me! I am not worrying over anything, I am not sick. I wish they could find another person who is as healthy as I am at the present moment!" "My mental condition is perfectly well." "I insist that my commitment here was illegal," etc. Whenever this strong emotional reaction appeared, something had to be done to make the continuation of the reading possible. To make the patient pass over the unacceptable statement the observers usually pointed out that the letter is a form letter and is sent to all newly-admitted patients before the final diagnosis is made. This explanation, leaving the question of illness open, never failed to relieve and to quiet him. This procedure is justifiable because it cannot possibly be the task of a general form letter to give an individual patient actual insight into his disease.

The paragraph about work proved to be suggestive of the prolonged stay in the hospital even more than the paragraph directly concerned with the duration of hospitalization. Apparently some patients became alarmed lest they should be kept indefinitely for the profit of the hospital. They protested against this possibility, not against the work as such: "You mean to work here, but I don't want to stay here!" "I won't work here, I have babies at home. I wish they would let me go to my children." However, this mis-

interpretation was, in most cases, easily corrected by the messenger.

When the tendency to see everything as a menace is very strong, any paragraph of the letter may be interpreted as implying that the patient is dangerously ill, is considered insane, or that he will have to stay in the hospital forever. Occasionally even the letter as a whole may be interpreted as confirming the commitment. One patient after having read the letter and having asked many reasonable questions about its details, read the letter once more, and asked hesitantly: "Does it mean that I have to stay here forever?" This negative attitude towards the letter as such was a momentary reaction of fear, and usually could be dissipated by the messenger whose presence was of utmost importance in the case of this type of response to the letter.

9. The above instances merge into purely *delusional misinterpretation* of the message. Such interpretation was given by one patient who thought the letter represented a contract for her to "affiliate with the hospital" and, therefore, refused to read it. Another patient after having read the communication explained that this was an invitation from her previous employer for her to resume her work under him.

10. For some of the patients who were quite absorbed in their thoughts or fantasies, especially for those in a state of acute excitement, the reading of the letter, even if they understood it in parts, was only an *annoying interruption* of their preoccupation.

11. Some of the readmitted patients read the letter only in order to find out whether it was the *identical letter* they had received before.

Table VI gives the frequency of the different functions of the letter. Even though it often had for the patient not one but many of the functions described above, only the predominant one is given for each patient in this table. The group "function of the letter not clear" only partly coincides (in number and content) with the group that did not read the letter (cf. Table III) because occasionally the attitude towards the letter was clear even when the actual reading was not achieved, and *vice versa*.

TABLE VI. FUNCTIONS SERVED BY THE LETTER

	Male	Female	Total
Positive:			
1. Orientation about the basic facts of hospitalization..	12	13	25
2. Orientation about life in the hospital	16	10	26
3. Imparting rules and directions	5	2	7
4. Showing the way out .....	..	3	3
5. Sign of being credited with understanding (detached criticism) .....	..	4	4
6. Sign of a personal contact with the superintendent..	1	3	4
7. Assurance of mental or physical cure	2	..	2
	—	—	—
Total	36	35	71
Negative:			
8. Confirmation of disease and incarceration	1	1	2
9. Delusional interpretation .....	..	2	2
	—	—	—
Total	1	3	4
Neutral:			
10. Annoying interruption	2	2	4
11. Mere statement of identity of letter	6	3	9
	—	—	—
Total	8	5	13
12. Functions of letter not clear	5	7	12
	—	—	—
Grand total	50	50	100

The table shows that the main function of the letter is that of helping the patient to orient himself in the new situation, which is in accordance with the purpose for which it was devised. This function is equally important for men and for women. Of the minor functions, those of showing the way out, of crediting the recipient with normal understanding, and of establishing contact with the superintendent, are especially stressed by women; those of imparting objective rules, and of assurance of cure, by men.

For the purpose of further successful treatment in the hospital, the attitudes 1 to 7 (cf. Table VI) may be considered positive, 8-9 negative, and 10-11 irrelevant. The positive functions of the letter strongly predominate.

Though, according to the table, the letter has a positive function as frequently with women as with men, yet there were many indications that in most of the cases men benefited by it much more than women. In fact, 12 men and only 2 women spontaneously expressed

their complete satisfaction with the message. One of the reasons for this difference seems to lie in the different response to its quality as a form letter. While men usually appreciated this characteristic, women mostly started by considering the letter to be a genuine personal communication and had to undergo afterwards the shock of discovery of its actual nature. Accordingly, the largest amount of emotional protestations came from women, who also kept asking for additional information of a more personal character. In general they called on the messenger for help much more frequently than did the men.

SUMMARY AND PRACTICAL RESULTS

A study has been made of the effectiveness of a form letter designed for orientation purposes and sent to each patient newly admitted to the hospital.

It appeared that the contents of the letter were actually communicated to 77 out of 100 patients and were understood completely, or in part, by 69 of them. The conditions which most frequently interfered with the successful reading and understanding of the letter by the patient were language difficulties and acute psychotic states. Next in frequency were physical infirmities and the absence of glasses.

The effect of the letter was in the great majority of cases clearly a positive one. It was appreciated by the patients mainly as a source of information about basic facts of hospitalization and about life in the hospital. By enabling the patient thus to orient himself in his new situation, it greatly helped to relieve his uncertainty and apprehension. Other, but not less valuable, functions were those of giving the patient practical directions for his behavior in the hospital and of restoring his self-respect. The latter effect was produced less by the contents of the message than by the mere fact of getting the letter with its general tone of consideration for the patient. The very rare unfavorable interpretations of the message were mostly corrected by the messenger whose presence was in general of great importance in increasing its positive effect. This was specially true in the case of women, who proved less able than

men to understand adequately and to benefit by a general letter and required a great deal of personal explanation.

As the letter thus proved to be very valuable, it was thought deserving of further elaboration, and accordingly, was rewritten on the basis of observations collected during the study. To secure the maximum effect of both the personal and the general aspects of the letter it was divided into two parts, a short letter from the superintendent written in a personal tone and an informational booklet written in the form of questions and answers. The paragraphs were re-formulated with a view to making them easier to understand and less apt to give rise to objections and unfavorable reactions on the part of the patients. The new version is given in the appendix. It is planned to have this translated into the three or four languages spoken by the larger groups of foreign-born patients. A group of members of the psychological department have volunteered to take charge of the delivery and interpretation of the letter to the patients, and thus the office of the messenger was made permanent. It is hoped that in this form all the potentialities of the orientation letter will be fully utilized.

NEW VERSION OF LETTER

Dear Sir: (Madam):—

This letter is sent to you with the hope that it may help you to adjust yourself to a new and strange situation. I know how confused the newcomer must be when he or she enters this hospital. The place is so large, there are so many people about, and there are so many different ways of doing things that it is hard to get straightened out.

Together with this letter I am sending you some information about the way of doing things here that may help you to get your bearings. It is hard to think in advance of all the questions you may wish to ask but I can assure you that everyone in the hospital will be glad to give you any information that is not covered by this booklet. Do not hesitate to ask questions about things you do not understand.

As the Superintendent of the hospital I extend to you my greetings. I want you to know that we are interested in your comfort and well-being while you are here. But more than this, we are most anxious to help you in every way possible in order that your time in the hospital may be as short as possible. I hope you will profit by your stay here and that you will leave with feelings of friendship towards the institution.

There are 2,200 patients in this hospital. I cannot know each one as intimately as I could wish. But there are many physicians, nurses and other assistants who are as anxious to help you as I am. I hope you will have full confidence in them. You may also write a personal letter to me if you think there is anything I can do for your comfort and well-being.

Cordially yours,

(Signed) WILLIAM A. BRYAN,
Superintendent.

INFORMATION ABOUT THE HOSPITAL

This booklet is made up of questions that have been asked by many people coming to this hospital. I hope you will find the answer to anything you may wish to know about.

1. *What is this place?*

It is a hospital maintained by the State for the cure of people who have mental or nervous illness. It is located in the city of Worcester and is the largest of eleven State hospitals. There are 2,200 patients here and 500 employees.

2. *Why am I here?*

You are here because someone in the community thought that your ideas and actions were very strange. From this they reasoned that your mind must be sick. It may have been your friends, relatives, or even a stranger. Ask your physician to discuss the details of your hospitalization with you.

3. *What right have you to keep me here?*

You were sent here by the court to find out whether or not you are ill.

4. *But I never appeared before any court. How could I be sent without any chance to defend myself?*

The question of mental illness is not one for judges or lawyers to decide. It is physicians who must make this decision. The court appoints physicians to examine you and if they report that you should come to a hospital for treatment or examination, the judge issues the order without even seeing you.

5. *How long will I have to stay?*

That depends entirely upon whether the physicians find that you are ill. If they do not believe that you have any sickness that should cause you trouble you may leave just as soon as they decide. But if they find that you are ill then you must remain until you are better. Your physician will be glad to discuss this with you.

6. *Can I telephone my people?*

The telephone system has to be used for so many hospital calls that we can not, as a rule, permit private calls.

7. *Can I write to my people?*

Certainly. Ask the nurse for paper, envelopes and pencil. Please leave your letter unscaled. The law requires that the physician read all mail leaving the hospital. We always send the letters if they are not indecent or threatening.

8. *Shall I receive letters?*

You will receive all letters sent to you, unopened. If you do not receive mail it is because your people do not write you. Perhaps it would be well for you to send them a letter occasionally.

9. *How can I manage my affairs outside of the hospital?*

There are specially trained social workers in the hospital who will see the people outside of the hospital about any business that you may have. They may also be helpful to you in making all necessary arrangements for the time when you leave the hospital.

10. *When may relatives come to see me?*

The regular visiting days are Tuesday, Saturday and Sunday of each week. All holidays are also visiting days. The hours are from 9:30 to 11:30 in the morning and from 1:30 to 4:30 in the afternoon.

11. *Why am I kept in bathrobe?*

For two reasons. First to enable the physician to carry out a careful physical examination and to do certain tests. Second to give the office a chance to list and mark your clothing so it will not be lost.

12. *When shall I get my own clothes?*

Probably in two or three days.

13. *Can I have my money?*

Any money that you brought to the hospital with you or any that is sent by your relatives or friends is deposited in the office of the Treasurer. It can only be taken out on a receipt signed by yourself.

14. *Can I buy what I want with my money?*

Yes, you can, if your physician approves of your order. The nurse will prepare a list of store orders every Monday. Tell her what you want and sign an order for the Treasurer to pay for it out of your money.

15. *Can I smoke?*

Certainly, if you wish and if your health permits. Ask the nurse to take you to a place where smoking is permitted and give you a light.

16. *Are there any entertainments in the hospital?*

During the winter time there are dances on Mondays and picture shows on Wednesdays. Ask the nurse to take you there.

17. *Can I go out for walks?*

There are 7 wards on the men's side and 6 on the women's side that have no locked doors. Patients on these open wards have grounds privileges, that means they are free to come and go on the grounds as are the employees. They are permitted to go to the city at certain times and frequently go home to spend a few days. Grounds privileges are given to the patients only if they behave in a normal and sensible way and consent to follow certain rules. Your physician can tell you about these rules. To be placed on an open ward is a step towards home.

18. *How do I get books to read?*

Ask the nurse to take you to the library or get a book for you. We have an excellent library which we hope you will use.

19. *Do I have a chance to go to church?*

Yes. We have Catholic service each Sunday morning at 9:15, Protestant service at 10:15, Jewish service twice each month on Sunday afternoon, and Episcopal service once each month. We have both a Catholic and Protestant chaplain attached to the hospital.

20. *What is going to happen during the next few days?*

Your doctor will have long talks with you and ask you many questions about yourself and your family. You will also be given a thorough physical examination. Your eyes, nose, and throat will be examined, some blood will be taken from your arm for analysis, and your teeth will be examined in the dental office. After all the examinations have been completed the physicians will discuss in a staff meeting whether something should be done for you in the hospital or whether you are well enough to go home.

21. *How shall I spend my time while I am in the hospital?*

Ask the nurse if she can find any occupation for you on the ward. If you want any other occupation ask for the O. T. girl.

22. *What is an O. T.?*

We say O. T. for occupational therapists. They are specially trained persons who teach you new and interesting occupations. You can tell them by their dress; they wear bright blue uniforms and no caps.

23. *What good will occupation do me?*

Occupation keeps the troublesome thoughts away, keeps you interested in useful things, and gives the necessary exercise to your mind and body. Work for your own sake and peace of mind if your physician finds that you are physically able. To take an interest in some occupation is the best and quickest way to convince the physicians that you are well enough to go home.

24. *Do many patients leave this hospital?*

The best way to answer this question is to say that in order to make room for 750 new patients each year we must discharge an equal number. If you will listen to the radio on the ward each Saturday evening you will hear about those patients who are discharged from the hospital each week.

STUDIES OF CATATONIA

IV. *Electrical Skin Resistance of Catatonics During Sleep*

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Claims have been made that the various psychopathic groups show characteristic electrical skin resistance pictures,^{6, 7, 9} and marked changes of skin resistance levels occurring at the onset of sleep have also been reported.^{5, 7, 8} Conclusions as to tensions and the degree of mental upset have been drawn from records of this type. Our studies^{1, 3} have not corroborated these claims. As indicated in our latter report,³ determinations of electrical resistance levels were made during the night, in a group of 10 catatonic dementia præcox patients and on a control group of 4 normal adult men.

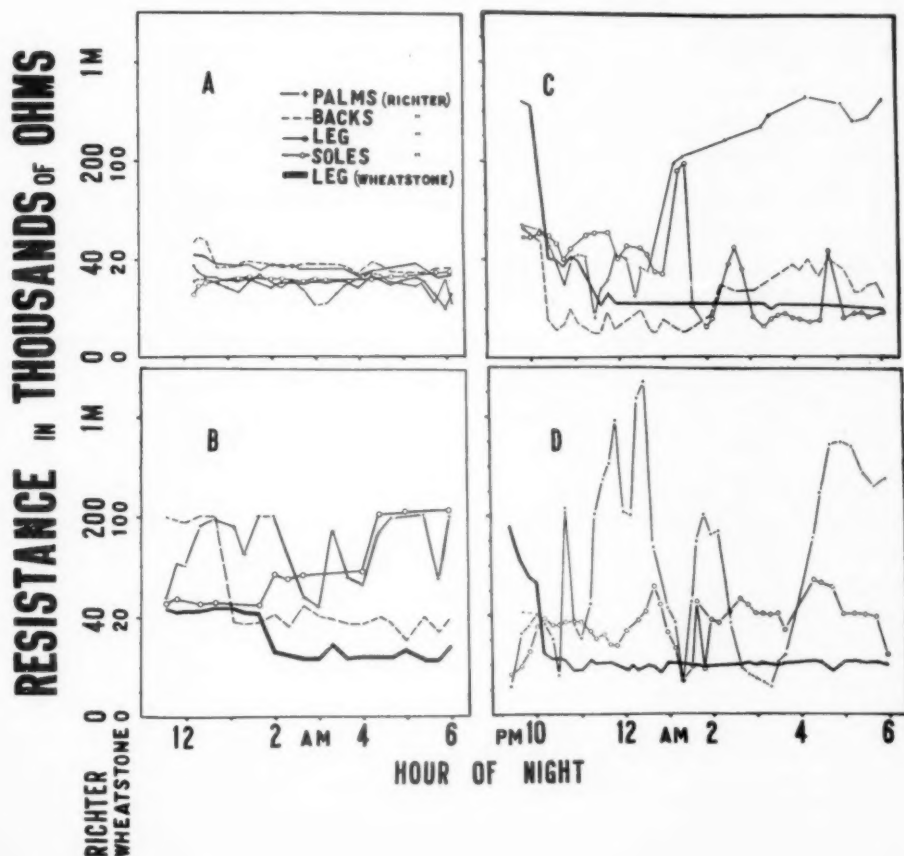
As a result of a preliminary study of the characteristics of electrodes, zinc-kaolin-zinc sulphate electrodes were used. The electrodes consisted of shallow convex zinc cups approximately 1¼ inches in diameter soldered to copper wire leads. The depressions in these electrodes were filled with a kaolin paste made with a solution of saturated zinc sulphate. These electrodes were then placed on the desired skin area and held in place by elastic bandages. These electrodes are in all essential respects identical with those used by Richter.⁷

Two methods of measuring the resistance of the skin were used, i. e., (a) an ordinary L. & N. Wheatstone Bridge and (b) the method used by Richter. A comparison of the two methods has been made previously.³ The present report will deal mainly with the Richter method. This method has the advantage of using a very *minute* and a *constant* current strength (in our case approximately 2 microamperes). A galvanometer (L. & N., type 2420) was used as an indicator of the current strength. An L. & N. Type K potentiometer was used to maintain the potential sufficient to produce such a current through the body. Determinations were made on each of the four experimental nights for each patient, on one night for each of three normals and on two nights for the fourth normal.

We have already reported⁸ that there was no apparent relationship between the variations of body resistance and the onset of sleep. Figure 1A is an illustration of this fact. It shows the variation of resistance level during the night for one of the four normal subjects. It will be noted that there is practically no significant variation of any sort, although the time involved includes the period of onset of sleep. The onset of sleep certainly did not affect the resistance level in this case. The other records (not illustrated) from normals are more variable but point to the same conclusion. Apparently the increased dryness of palms during sleep which Richter assumed as an explanation of the resistance change⁷ does not necessarily accompany sleep.

FIGURE 1. SAMPLE RECORDS SHOWING NOCTURNAL VARIATION OF BODY RESISTANCE

A and B, Normals; C and D, Catatonics



Figures 1B and 1C include examples of an initial fall of resistance superficially similar to that which has been claimed to be characteristic of certain psychopathic syndromes.⁶ These occur quite frequently in records for both normal and catatonic cases, shortly after the application of electrodes, and therefore seem to be, at least in our records, merely the well-known "rest curve" which has been found by various investigators of the psychogalvanic reflex.²

We have already reported³ that the resistance determined by the Richter method showed larger and more frequent fluctuations during the night, than did those determined by the use of the Wheatstone bridge with greater current strength. Our records, however, do not show evidence of any consistent type of curve such as has been described as characteristic of catatonics. Figures 1C and 1D are illustrations of our curves from catatonics. Whether the lack of similarity to the previously reported characteristic curves is due to the fact that our records were taken during the night, we cannot say at present.

Although the catatonics did not show a characteristic *form* of resistance curve, they did yield larger *variations* of resistance during sleep than did our control group of normal subjects.* This is probably characteristic of the psychopathic group in general rather than of the catatonic dementia præcox group alone. We propose an investigation of this point. A comparison of Figures 1A and 1B (normal) with Figures 1C and 1D (catatonic) shows the greater variability of the catatonics. Figure 1B is the most variable record which we obtained from any normal subject.

The amount of the resistance variation was apparently more characteristic of the catatonics than the number of irregularities in the resistance records. As a rough method of showing this, the total number of resistance records were classified; first, as to whether the variations were large or small, and second, as to whether the curves were irregular or smooth. For the Richter records a change of more than 20,000 ohms was called large while for the Wheatstone resistances a 5,000 ohm variation was called large,

*Richter found similar minute-to-minute fluctuations of skin resistance in narcoleptic cases and stuporous catatonics but did not find them in other catatonics (waking). (8, p. 384). We found that catatonics, *when asleep*, also showed fluctuations of this type. (Readings were similarly spaced at 10 to 15-minute intervals.)

since the variation is of smaller amplitude when determinations are made by this latter method.

That the amplitude of the variation was the most characteristic factor is shown by Table I. The table is in terms of the percentage of resistance records in which large variations and in which frequent variations are shown. There was more difference shown between catatonics and normals by Richter's than by the Wheatstone bridge measurements in both amplitude and frequency, as shown by the column of differences. By confining the comparisons to Richter's method alone, however, we see that the catatonics differed more greatly from the normals in amplitude (31 per cent more catatonic records contained "large" fluctuations) than they did in frequency of fluctuations (18 per cent more catatonic records showed "frequent" variations).

TABLE I. MAGNITUDE AND FREQUENCY OF NOCTURNAL VARIATIONS OF BODY RESISTANCE

	PER CENT OF RECORDS SHOWING LARGE FLUCTUATIONS		PER CENT OF RECORDS SHOWING FREQUENT FLUCTUATIONS	
	Wheatstone method	Richter's method	Wheatstone method	Richter's method
Catatonics	31	62	36	74
Normals	33	31	40	56
Difference	2	31	4	18

The tabulations from which the table is derived also suggest that the variations appear chiefly in records from the skin areas of the palms and of the soles of the feet. A larger number of records on each of the four areas is needed to give conclusive results on this point, however.

Theoretical Implications: Adequate interpretation of our results depends upon a more complete determination of the factors being measured than we have made so far. For instance, there was evidence at times that potential variations occurred, which might account for the large apparent resistance fluctuations. Although such potential variations might be electrode artifacts, in a portion

of the records the resistance variation occurred while the apparent body potentials remained practically constant. It seems, therefore, that there were fluctuations which were independent of possible potentials arising from electrode sources.

It has previously been shown that the type of apparent resistance, which was being measured, is chiefly dependent upon variations in skin resistance. It has also been demonstrated, especially for the palms and soles, that skin resistance is dependent upon variations in permeability of sweat gland membranes, which permeability is in turn controlled by the autonomic nervous system. Since our tabulations suggest that the palms and soles show the greatest fluctuation, we may tentatively conclude that the larger and more frequent variations shown by the catatonics indicate a greater instability and variation of activity in autonomic function in catatonics than in normals, at least during sleep. Such automatic functional variation should be sharply distinguished from low "vegetative-emotional" reactivity ("psychogalvanic reflex") to lists of words or questions in catatonics reported by Odegaard,⁴ since the latter involves an external stimulating situation of a complicated nature.

On the basis of previous claims⁵ that resistance rises or falls with the onset of sleep, it might be objected that the variations merely indicate more fitful sleeping on the part of the catatonics. However, the lack of any necessary relationship at all between sleep and the resistance fluctuations in normal subjects makes such an explanation unsatisfactory.

SUMMARY

1. A study of electrical body resistance of 10 catatonic dementia præcox patients and four normals has been reported. Reference has been made to a previous article³ reporting that resistance determinations by Richter's method show greater variability than similar determinations by the Wheatstone bridge method.

2. No apparent relationship between the Richter type of resistance curves and sleep occurred in normal subjects. A drop in the resistance level of non-sudorific areas occurred quite frequently

with both groups which we studied and was probably related to the "rest curve" previously reported in the psychogalvanic studies.

3. The catatonics showed a greater percentage of records in which variations of resistance of more than 20,000 ohms occurred. The number of irregularities in the curves was also slightly greater but less characteristic of the psychopaths than the *amplitude* of the fluctuations.

4. On the basis of the present results it was tentatively suggested that a greater minute-to-minute instability or variability of autonomic function is indicated in the catatonics. It cannot be stated whether this variability is characteristic of the catatonic group studied, or of psychotic patients in general, although the latter seems more probable. This variability probably should not be confused with "psychogalvanic" reactivity to an external stimulating situation.

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STUDIES OF CATATONIA

V. *Perseverational Tendencies in Catatonic Patients*

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Clinical observation indicates that the tendency towards perseveration is one of the prime characteristics of the catatonic dementia præcox patient. Stereotyped movements are frequently noted and the successive repetition of some one succession or chain of movements is also characteristic. Since most of the clinically observed perseverations are reactions dependent on a "voluntary" control, the question may be raised whether such repetitive activity extends likewise to the processes under autonomic control.

If we use a function which mirrors activity of the autonomic nervous system, e. g., the galvanic skin response (psychogalvanic reflex), any perseveration of an autonomic function should be reflected therein. As evidence of the postulated perseverative activity we should expect, (a) that if we present an intense stimulus one or more times to a catatonic patient and then cease giving this stimulus, the response will continue to a greater extent than it will in a normal individual, similarly stimulated, and (b) that so long as stimulation does continue the magnitude of the response of the catatonic will decrease more slowly than that of the normal. In any case, the question as to whether perseverative activity extends to the non-voluntary autonomic functions is of importance for an understanding of catatonic dementia præcox.

Apparatus and Procedure: The experiment consisted of a total of nine stimulus series, the first five of which comprised Session I and the last four Session II. Each series consisted of 16 presentations of an auditory stimulus pattern. Pattern A consisted of two bells followed by two buzzers; Pattern B of bell-buzzer-bell-buzzer; and Pattern C of bell-buzzer-buzzer-bell.

In all series the blare of an automobile horn accompanied one of the patterns, acting as a stimulus for the galvanic skin response. In Session I three series were run, in which patterns A and B were presented with the horn accompanying pattern A, immediately following which two similar additional series were run with the horn

accompanying Pattern B. In Session II, four series consisting entirely of Pattern C were used, the first two being accompanied by the horn and the last two being presented alone. A comparison of the amplitude of deflections for the earlier and later series of Session I was used as an indication of perseveration. The use of the horn with the other stimulus pattern (B) in the last two series of this first session was intended as a further check of carry over or perseveration of the galvanic response previously conditioned to the A pattern. Session II was a straight conditioned response experiment, the amount of deflection shown in the last two test series being taken as an evidence of a type of perseveration. The order of presentation of the patterns in each series of Session I was ABBAABABBBABAAAB.

All stimuli were presented automatically by means of a commutator run by a synchronous motor and a selector switch, previously described by Forbes and Mays.¹ The commutator arm made one complete revolution every 18 seconds. Each of the bells and buzzers operated for 0.3 seconds. They were separated from each other by intervals of 0.9 seconds. The horn blew for 0.9 seconds, and was preceded by an interval of 1.8 seconds, and followed by an interval of 11.1 seconds. Although a number of extraneous sound stimuli were present, such as the click of the selector switch, the hum of the motor, etc., these were of negligible importance compared to the horn, and were constant for all subjects.

The Godefroy circuit^{2,3} was used for measurement of the galvanic skin response. A 22½ volt "C" dry-battery and potentiometer served as a source of potential. The current strength was kept at 0.7 milliamperes by adjusting the potentiometer. Electrodes consisting of small zinc cups filled with a paste of kaolin and physiological salt solution were attached to the right palm and left leg. An ordinary 2 to 1 radio transformer was used, the primary of which was connected to the galvanometer and the secondary to the subject. Since the only connection between the galvanometer and the subject was that through the transformer, not *actual* resistance but *changes* in resistance were measured. The galvanometer (L. & N., 2420c) threw a spot of light upon a transparent scale. The experimenter followed this spot with a sliding pointer connected

to a pen which recorded on the moving paper tape of a polygraph. The polygraph also carried pens recording (a) time in seconds, (b) the point of the presentation of the horn, (c) the presentation of the first stimulus in each group, and (d) the closing and opening of the signal key pressed by the experimenter to mark such interruptions as coughing by the subject, or adjustments of the potentiometer.

The subject sat facing the wall with his back to the experimenter; a cardboard screen separated him from all the apparatus except the horn which was inconspicuously located. The room was totally dark except for small lights shining from the galvanometer and on the milliammeter. The subject was told to sit quietly and not to move the electrodes; he was warned that he would hear "some noises" but assured that he would not be hurt in any way. He was given no other instructions.

Sixteen normal subjects were used, eight males and eight females, all of whom were psychiatric nurses, internes, or graduate students in psychology. Twenty male catatonic dementia præcox hospital patients constituted the abnormal group. Three weeks were allowed to elapse between the two sessions of the experiment so as to minimize the transfer to Session II of the adaptation to the horn produced by Session I.

Results: The only deflections of the galvanometer considered were those occurring between 8 and 12 seconds after the presentation of the first member of the stimulus group, i. e., between 2.3 and 6.3 seconds after the blowing of the horn. The highest point on the galvanometer line of the polygraph record during this period was taken to be the response to the horn, or the conditioned response to the preliminary stimuli in case the horn was not sounded. Measurements were made in millimeters and only relative values of the numbers obtained were considered. The current was kept at its original intensity of 0.7 m. a. by adjusting the potentiometer. The deflections are, therefore, roughly comparable.

The "C" group of stimuli was used in Session II, first, to increase the probability that the response to the horn would persevere after presentation of the horn was discontinued, and second, to make Session II similar to Session I so that comparisons of the

results obtained might be made with some justification. The introduction of the stimuli increased the probability that perseverational tendencies would be in evidence, and thereby increased the probability of securing differences between the normals and catatonics.

The method of determining the degree of perseveration was as follows: the average deflection to the reinforced pattern for the first series* was determined for each subject, and the average deflection for the group computed from these results. Similarly, the average deflection for the third series was determined. Table I

TABLE I. COMPARISON OF PRESERVATION IN CATATONICS AND NORMALS

	Average deflection in millimeters		Perseveration ratio Y/X
	Session I Reinforced stimuli		
	X (1st series)	Y (3rd series)	
Normals (14)	14.57	4.67	.32
Catatronics (13)*	8.27	5.53	.67
	Session II		
	Reinforced stimuli		
	X (1st series)	Y (2nd serie)	
Normals (10)	4.71	1.33	.28
Catatronics (14)	8.56	6.08	.71
	Session II		
	X (1st series reinforced	Y (last series unreinforced	
Normals (9)	4.71	0.85	.18
Catatronics (11)	7.26	2.83	.36

*Due to difficulties, such as movement of the electrodes or attempts on the part of some of the catatonic subjects to tear up the apparatus, a number of records had to be thrown out. This accounts for the varying number of subjects in the different parts of the table.

*In cases where one or two of the deflections to the horn were complicated by movements or other possibility of artifact, the mean was based on the undisturbed deflections only.

shows that in Session I the average deflection for normals for the third series was 32 per cent of that for the first series. This percentage was taken to be the degree of perseveration. For the catatonics perseveration was 67 per cent. Similarly, the table shows that in Session II the degree of perseveration was more than twice as great for the catatonics as for the normals, viz., 71 and 28 per cent, respectively.

A comparison of galvanic responses in the first three series of Session I with the last two of the same session (in which the horn accompanied the B stimulus pattern instead of the A pattern) gave no results which would change the above relationship.

In order to show that an entirely male normal group would still show a smaller perseveration score than the catatonics, a comparison by sexes was made. In general, females show less perseveration than normal males; but normal males have less perseveration than catatonic males (from one-fourth to one-half as much).

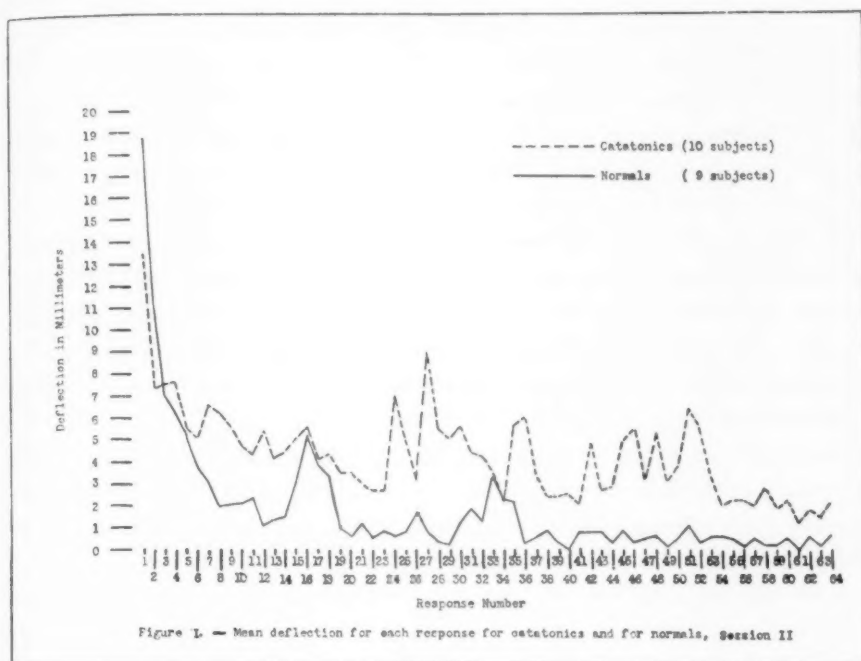
In Session I the initial response of the normals was much greater than that of the catatonics, but in Session II the initial response of the catatonics was greater, as is shown by Table II. This suggests the *possibility* that there is a carry-over of the response from Session I to Session II, and since the catatonic's response in Session II was not only as great but somewhat greater than in Session I, it seems possible that the response perseverates to such an extent that it becomes more intense.

TABLE II. APPARENT PERSEVERATION FROM SESSION I TO SESSION II

	X	Y	Y'	Apparent	Perseveration
	Average 1st series Session I	Average 1st series Session II	Average 1st half series Session II	Y/X	Y'/X
Normals (6)	18.66	5.25	7.06	.28	.38
Catatonics (9)	6.76	7.45	7.87	1.10	1.16

Curves showing the average deflection for normals and for catatonics for each of the 64 responses in Session II are given in Fig. 1. These curves show again the apparent tendency towards greater perseveration on the part of the abnormal subjects. The amount

of response for catatonics starts at a lower level than it does for normals, but by the time the third response is reached the curve for normals has dropped below that for catatonics.



Another outcome of the experiment adds evidence in keeping with the data reported. Two rather distinct types of curves appeared among the galvanic skin response records. In one type the response to the horn was at first fairly large, but rapidly dropped to and remained (with a few minor exceptions) at zero. In the other type the response was usually smaller at the start but retained its original intensity throughout the experiment. The first type occurred almost exclusively with normals, the second with catatonics. This may be partly due to differences in body resistance between normals and catatonics.

Six judges were shown samples of the curves and asked to pick out from all the records obtained in Sessions I and II those conforming to the two types. The average number of records chosen by each judge for each type was as follows:

	FIRST TYPE (Response dropping rapidly to and re- maining at zero)	SECOND TYPE (Response of consist- ent magnitude throughout ex- perimental period)
Normals	7.67	1.83
Catatonia	0.33	6.67

Though the appearance of these types is not startlingly significant, their presence does suggest that the general technique used in this experiment might be advantageously used in further study of the abnormal. If such types are found and then shown to correlate with the disease symptoms, they may be of considerable assistance in understanding the basic psychology and pathology of the disease. Odegaard⁴ has studied this phenomenon previously, but we cannot make direct comparisons due to differences of apparatus and technique.

The data reported do not warrant a dogmatic statement to the effect that catatonics show greater perseverational tendencies than normals under the conditions of this experiment, for the number of cases studied is too small to yield statistical verification of the significance of the differences obtained. However, the data are quite consistent; no matter what comparison is made the catatonics show the greater perseveration.

Our study indicates that the galvanic skin response might possibly be of much more value to psychology if pattern responses to temporally distributed patterns of stimuli are studied. Intelligence testing technique developed markedly when complex stimulus patterns and complex responses began to be considered. The galvanic response technique may similarly profit if attention is devoted to functional patterns of response to complex stimulus patterns, rather than to individual responses to individual stimuli.

SUMMARY

Stimulus patterns each consisting of the successive sounding of four electric bells and buzzers were repeatedly presented. Shortly after half of the stimulus patterns an automobile horn was blown, while with the other half no stimulation followed. A continuous galvanic skin response record was taken by the Godefroy method.

The experiment consisted of two sessions. In the first session two stimulus patterns, one of which was followed by the horn, were presented for three series of 16 patterns each, after which the horn was shifted so as to follow the stimulus pattern which it previously had not followed and stimulation continued for two additional series. The second session followed three weeks after the first. It consisted of four series consisting entirely of a third stimulus pattern, with the blowing of the horn following each pattern in the first two of these series.

The degree of apparent perseveration was determined by comparing the deflections in the later with those in the earlier parts of each session of the experiment. The apparent perseveration from Session I to Session II was calculated in a similar manner by comparing the earlier deflections of each session.

The degree of perseveration was calculated five times by comparing five pairs of average deflections. Catatonics showed two or more times as much perseveration as normals in all comparisons. The number of subjects was too small to warrant the use of statistical procedures, but the consistency of the results argues strongly for their validity.

Two types of galvanic curves, seemingly differentiating between the normals and catatonics, appeared among the records. These may have been due to differences in body resistance, or to perseveration. The presence of these curves together with the other results of the experiment suggests that the technique used may be further developed so that it will add to our knowledge of the basic psychology of the abnormal.

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STUDIES OF CATATONIA

VI. *Further Investigation of the Perseverational Tendency*

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This is a continuation of the line of investigation of autonomic perseverational tendencies initiated by Mays.⁵ †While he compared these tendencies in normals and in catatonic dementia præcox patients, the present study is concerned with the comparison of similar tendencies in various other clinical groups, namely: schizophrenics, manic-depressives, psychoneurotics, and normals.

If we assume with Razran⁷ that “. . . there is some sort of connection, let it be subliminal, between any stimulus and any response, and that the differences among various connections are only a matter of differences in some sort of thresholds . . .”, then perseveration, which may be conceived as simply the continuance of a disposition or set to act in a given way, would be expected to manifest itself in a lowering of the response threshold to stimuli in general. As criteria of perseveration, therefore, the following excitatory tendencies may be used: (a) resistance to *adaptation* (response decrement with repeated stimulation); (b) conditionability* (attachment of the response to extraneous stimuli repeatedly presented together with the adequate one); (c) experimental extinction* (decrement of a conditioned response with repeated unreinforced stimulation); and, (d) irradiation* (carrying over of the response to other extraneous stimuli).

The present study is concerned with the extent to which each of the above clinical groups exhibited autonomic perseverational tendencies as manifested by a, b, c, or d, above.

Subjects: The psychopathological patients were all hospitalized at the New York State Psychiatric Institute. The normal individuals were all graduate students in psychology. All were kept in ignorance of the object of the experiment. The composition of the groups was as follows: schizophrenics, 11 males, 6 females; manic-

*Terms coined and used by Pavlov (6). As used here they refer only to the phenomena themselves and are devoid of all theoretical implications.

†Mays' experimentation had been completed but the data were not worked up at the time the present study was carried out.

depressives, 4 males, 6 females; psychoneurotics, 3 males, 6 females; normals, 2 males, 4 females. The three pathological groups were heterogeneous as to sub-diagnosis; and of the schizophrenics, none was catatonic at the time of experimentation.

Apparatus: The autonomic index used was the *galvanic skin response*** which was chosen because it is one of which the subject is not aware and because it lends itself readily to recording. The initial stimulus for evoking the reaction was a tetanizing faradic shock applied to the left wrist. The intensity of this was increased until the subject complained and was then reduced just a trifle; in other words, an attempt was made to keep its intensity just below the "threshold of complaint."

The reaction was registered by Darrow's¹ modified method, in which the response manifests itself as a sudden drop in resistance to a constant direct current. A galvanometer placed across a Wheatstone bridge makes possible a measurement in ohms of the exact amount of resistance change taking place. Recording was essentially the same as that of Mays.⁵ Electrodes were similar to those of Darrow.¹

To study conditioning and irradiation it was necessary to use two stimuli in addition to the shock. Two sound patterns served this purpose. Each consisted of the sound of a buzzer and two bells following one another at approximately one-second intervals. The buzzer and bell were common to both patterns, but occupied different relative serial positions. One pattern, except when given for test purposes, was always reinforced by the shock which followed one second after the last bell. This was used in the study of conditioning, and will be referred to as the *reinforced pattern*. It consisted of the sequence buzzer-bell-bell. The other pattern, which was never reinforced by the shock, was used in the study of irradiation and will be referred to as the *unreinforced pattern*. It consisted of the sequence bell-buzzer-bell.

The sound patterns were similar to but simpler than those used by Mays⁵ and were similarly presented by a selector switch used in connection with an electrically-driven commutator.² The points of

**The experimental work on this response has been reviewed by Landis (3) and by Landis and DeWick (4).

incidence of the various stimuli were recorded on the polygram by means of electromagnetically-operated marking pens.

Procedure: All subjects were put through exactly the same experimental program. In outline, this consisted of (a) a preliminary series in which both sound patterns were presented without reinforcement; (b) intensive reinforcement, in which the two patterns were presented alternately, the one pattern always being reinforced with the shock, except when occasionally presented alone for test purposes; and (c) a final test series in which both patterns were again given without reinforcement. The experiment consisted of two sessions, one on each of two successive days. Five consecutive series, each consisting of 18 stimulations given 20 seconds apart, comprised a session. An outline of the series follows: "A" represents the reinforced pattern together with the shock, "a" the reinforced pattern without the shock (for test purposes), and "b" the unreinforced pattern.

Series No.

	1st Day
1. (preliminary)	abbaababbbabaaabaa
2, 3, 4, and 5, each (reinforcement)	AbbAAbAbbbbAbAAAbaa
	2nd Day
6, 7, 8 and 9, each (reinforcement)	AbbAAbAbbbbAbAAAbaa
10 (final test)	abbaababbbabaaabaa

Series 1, in which no shock was given, may be considered as the preliminary or control series. Series 2 to 9 inclusive, in each of which the shock was consistently given, and which straddle the two days, may be considered as the reinforcement series.

Series 10, in which the shock was again omitted, may be considered as the final test series. It will be observed that in each of the eight successive reinforcement series the reinforced pattern appears twice at the very end without the reinforcing shock. These two stimulations were introduced as tests of conditioning.

Results: As the "A" stimulation always included the shock, a comparison of the responses to the earlier of these with those to the later ones for the same experimental period should provide an index of *adaptation*. To enable such a comparison to be made, the

composite mean of these responses for both days was computed (a) for the first two reinforced series and (b) for the last two reinforced series, the first value being the mean for series 2, 3, 6 and 7, and the second being the mean for series, 4, 5, 8 and 9. These values, together with the ratio of (b) to (a), are presented in Table I. Column X gives the mean response in ohms for the second two reinforced series; column Y gives the same for the first two reinforced series.

TABLE I. ADAPTATION OF REINFORCED RESPONSES

	REINFORCED (A) RESPONSES		ADAPTATION
	(X) Average of last two series, each session (ohms)	(Y) Average of first two series, each session (ohms)	X/Y Ratio
Schizophrenics	364	596	.61
Manic-depressives	288	520	.55
Psychoneurotics	232	488	.48
Normals	324	636	.51

Comparison of the mean "a" responses of the preliminary series with (a) those at the ends of the several reinforcement series and (b) those at the ends of the final test series provides two indices of conditionability.* Table II has been drawn up to enable such comparisons to be made. Column X gives the mean response in ohms to all the first "a" stimulations** of the eight reinforcement series; column Y gives the same to the first 8 "a" stimulations of the final test series; column Z gives the same to the first 8 "a" stimulations of the preliminary series. The last two columns give the respective ratios of the X and Y values to the Z values.

*At first glance it would appear from the tables that no conditioning is present, as the preliminary responses are greater than the "so-called" conditioned ones. However, this is in reality an illusory effect resulting from the very rapid initial adaptation of the galvanic response. In most subjects the sound patterns alone did at first produce responses but these soon adapted out. This is shown by the fact that the mean response for all subjects to the 9th "a" combination of the preliminary series was but 14.3 ohms, while that to the combined 1st "a" combinations of the several reinforcement series, which occupied equivalent serial positions, was 76.0 ohms.

**The response to the second "a" stimulation in these series was not included because of its being complicated by the "clicking" noise of the selector switch which at this point automatically re-set itself to start the next series.

TABLE II. SHOWING CONDITIONABILITY

	AVERAGE TEST (A) RESPONSES			CONDITIONABILITY	
	During (X) reinforcement, series 2 to 9 (ohms)	Final test, series 10 (ohms) (Y)	Preliminary, Series 1 (ohms) (Z)	During reinforcement X/Z	Final Y/Z
Schizophrenics	90.8	35.6	87.6	1.04	.41
Manic-depressives	76.0	27.2	95.6	.79	.26
Psychoneurotics	56.4	47.2	155.2	.36	.30
Normals	63.2	24.8	211.2	.30	.12

Comparison of the later with the earlier "a" or conditioned responses of the final test series provides an index of *experimental extinction*. To enable such a comparison to be made, the means of the second four and first four "a" responses of this series have been computed and presented in Table III. Column X gives the mean in ohms for the second four responses; column Y, for the first four. The ratio of the X values to the corresponding Y values is also given. A high ratio is here indicative of a low degree of experimental extinction and a high degree of perseveration.

TABLE III. RESISTANCE TO EXTINCTION OF CONDITIONED RESPONSES

	AVERAGE TEST (A) RESPONSES		RESISTANCE TO EXTINCTION
	Last four, X) final series 10 (ohms)	First four, (Y) final series 10 (ohms)	X/Y Ratio
Schizophrenics	23.2	47.6	.49
Manic-depressives	19.2	35.2	.55
Psychoneurotics	39.6	50.0	.79
Normals	15.2	28.0	.54

Comparison of the mean "b" responses of the preliminary series with (a) those of the reinforcement series and (b) those of the final test series provides two indices of irradiation. Table IV has been drawn up to enable such comparisons to be made. Column X gives the mean response in ohms for all the reinforcement series combined; column Y gives the same for the final test series; column Z, the same for the preliminary series. The last two columns give the respective ratios of the X and Y values to the Z values.

TABLE IV. IRRADIATION

	AVERAGE UNREINFORCED (B) RESPONSES			IRRADIATION	
	(X) During reinforcement, series 2 to 9 (ohms)	(Y) Final test, series 10 (ohms)	(Z) Preliminary, series 1 (ohms)	During reinforcement X/Z	Test series Y/Z
Schizophrenics	90.8	26.8	63.6	1.43	.42
Manic-depressives	78.8	17.6	53.2	1.48	.33
Psychoneurotics	60.0	20.8	77.2	.78	.27
Normals	72.0	27.2	178.8	.40	.15

Table V has been drawn up to summarize the results of the whole experiment. The data in this table have all been derived from and represent a condensation of the preceding tables. In the first four columns the groups are ranked in degree of perseveration for each criterion as shown by their respective ratios. In those instances where more than one index for a given criterion had been used previously, these indices were combined by weighted averaging, so that each contributed equally to the final score. The weights were determined by the magnitude of the respective means. In order to give some notion of the distances between ranks the figures are also given. These figures were obtained by dividing the ratio for each group by that for the group occupying the first rank position; this was done for each of the four criteria. Thus, the group exhibiting the greatest perseveration always receives the value

100; the others receive values in proportion to the degree to which they exhibit the phenomenon. The last column gives the average of the scores for all four criteria for each group.

TABLE V. RELATIVE PERSEVERATION SCORES OF THE DIAGNOSTIC GROUPS IN PER CENT OF HIGHEST SCORE

	Resistance to adaptation	Condition- ability	Resistance to experimental extinction	Irradiation	Combined perseveration score
Schizo- phrenics	100	100	62	100	91
Manic- depressives	90	70	70	91	80
Psycho- neurotics	79	53	100	57	72
Normals	84	29	68	31	53

It will be observed that according to three of the four criteria, namely, resistance to adaptation, conditionability, and irradiation, the schizophrenics show the greatest amount of perseveration; while according to the same criteria, the normals show the smallest amount on two counts and next to the smallest on the third. Though not nearly so striking, this result seems to be in harmony with Mays⁷⁵ finding that catatonic dementia præcox patients exhibit autonomic perseverational tendencies more strongly than normals.* According to the fourth criterion, on the other hand, the schizophrenics show the least resistance to experimental extinction of the response. The manic-depressives rank second according to all four criteria, while the psychoneurotics rank fourth according to one, third according to two others, and first according to the remaining one.

The combined score for the four criteria shows the schizophrenics to be most perseverative, the manic-depressives next, then the psychoneurotics, and the normals least.

It must be borne in mind, however, that the two psychotic groups showed considerably less responsiveness to the sound stimuli in the

*The greater degree of perseveration found by Mays may be due to the fact that his patients were all markedly catatonic, while the schizophrenic group employed in the present experiment contained no catatonics.

preliminary series than did the non-psychotic ones. This becomes evident from inspection of Tables II and IV, and is borne out by the fact that the combined mean of the "a" and "b" responses of the preliminary series for the schizophrenic and manic-depressive groups together is but 75.16 ohms, while that for the normals and psychoneurotics is 147.72 ohms. Such a marked difference suggests that the psychotic groups are relatively indifferent to sound stimuli as long as the sounds are not associated with noxious stimuli.

Since such a difference of initial sensitivity would affect the ratios in the preceding tables, the effect of the low initial reactivity of the psychotic groups has been eliminated in Table VI by making comparisons in terms of actual ohms deflection and converting them into percentages.

TABLE VI. COMBINED PERSEVERATIONS SCORES IN TERMS OF ABSOLUTE VALUES

	Per cent of highest score
Schizophrenics	90
Psychoneurotics	79
Manic-depressives	73
Normals	70

When this is done, the schizophrenics remain at the top and the normals at the bottom, but the positions of the manic-depressives and psychoneurotics have changed, and the group differences have noticeably diminished. As the results stand, however, they seem to suggest a slightly greater general tendency toward autonomic perseveration in the schizophrenics than in the other groups, and likewise, a slightly greater tendency in psychopathological patients in general than in normals. Such a tendency would be in harmony with but less marked than the findings of Mays.⁵ The fact that Mays' group contained a larger number of patients diagnosed as catatonic at the time of experiment should be borne in mind in comparing results.

SUMMARY

The study here reported continued the investigation of autonomic perseverational tendencies initiated by Mays⁵ but included patients diagnosed as manic-depressive and psychoneurotic as well as schizophrenic, and also a control group of normals.

Resistance to adaptation, the degree of conditioning, the degree of irradiation to the non-reinforced stimulus pattern, and resistance to experimental extinction were used as evidences of perseveration in an autonomically-controlled function, the galvanic skin response. In the first three indices, the schizophrenics ranked highest, while in the last they fell lower than the other groups. When the four scores were combined, the groups ranked in descending order of perseveration were—schizophrenics, manic-depressives, psychoneurotics and normals.

The two psychotic groups showed less responsiveness to the sound stimuli in the preliminary series than did the non-psychotic. When comparisons on the basis of this preliminary series were eliminated, the difference in perseveration scores between groups was reduced but the schizophrenics still ranked highest and normals lowest in degree of perseveration. Such differences of perseveration are in harmony with, but less marked than those obtained by Mays.

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STUDIES OF CATATONIA

VII. *Conclusions and General Summary*

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The foregoing papers present findings which agree with some and disagree with other previous reports and theories, and present a certain amount of new data on catatonia.

Study II suggests a direction for future investigations of catatonia from the viewpoint of neurophysiological function. Our finding that *cerea flexibilitas* disappears during sleep and the consequent implication of its dependence on functional cerebral centers, lead to two possible conclusions regarding this particular condition. One of the present authors (C. L.) has found that college students, who were being initiated by a fraternity, showed wide individual differences in ability to hold a given posture for a long period of time, and that some of them were able to maintain postures for periods comparable to those involved in most exhibitions of *cerea*. One interpretation based on this observation and on the disappearance of the waxy state in sleep might therefore be that *cerea flexibilitas* is a more or less voluntarily controlled phenomenon and is the result of an individual psychophysiological idiosyncrasy. On the other hand, the fading of *cerea flexibilitas* may be interpreted as indicating that the waxy state is the result of some definite functional disturbance in the central nervous centers and that this disturbance is eliminated by the activation of sleep centers, or other sleep processes. Whichever the case, it seems to be clear that any long continued systemic condition, such as a general toxication, cannot be the basis of *cerea flexibilitas*.

Study III makes necessary the revision of certain psychiatric theories. The comparatively infrequent (as compared to normal) assumption of foetal postures by catatonics during sleep, together with the fact that several cases showing extreme foetal postures during the waking state showed essentially normal variability of postures during sleep, means that such foetal postures are essentially a waking phenomenon. Any theory, therefore, which sees in such postures an expression of the unconscious autonomic craving

to return to a previous condition of the organism, must be revised, especially if such a theory is combined with the assumption that dreams during sleep are an evidence of the freeing of such unconscious wishes and their full expression during sleep. If such postures are held to be an indication of regression, this regression is apparently limited to conscious waking states. Furthermore, there was some evidence from our observations that curled postures during sleep were either mere habit or a reaction directed to the maintenance of bodily warmth in the case of both normals and abnormals.

The combined results of cerea flexibilitas and posture studies, i. e., the assumption of normal postures during sleep by catatonics showing markedly "foetal" waking postures, together with the loss by other catatonics of cerea flexibilitas during sleep, suggest that the stuporous catatonic syndrome is essentially a waking phenomenon in its several aspects.

Study IV agrees with certain findings by other investigators, in that greater variation of skin resistance was found during sleep in the cases of catatonia than was found in normals. That this variability indicates a variation or instability of autonomic nervous function fits in with findings by other investigators of a similar variability in certain physiological and biochemical measures taken on psychotic patients. Whether the variability found occurs only during sleep we have not as yet determined. This paper does not confirm previous findings of characteristic body resistance curves for catatonics, at least during sleep.

In contrast to these, the results on perseveration, Studies V and VI, are less clear-cut. Although both papers report a certain amount of apparent perseveration by catatonics in the autonomic index used (galvanic skin response), an indication of a greater initial reactivity shown by normals to an innocuous situation occurs in both papers and is pointed out specifically in Study VI. The measure obtained may, therefore, indicate a smaller degree of response to the original situation by the catatonics. Such a finding would be in line with the usual clinical descriptions, and the fact that a much less marked apparent perseveration was obtained when this initial reactivity was eliminated from the comparisons, makes

it possible that this is the case. The figures in Study VI are probably the more valid, due to the fact that the apparatus used for obtaining measurements was better controlled and gave measures of basic resistance, while the circuit used in Study V, although possessing the advantage of convenience, is open to more distortions.

The results of these two papers may therefore indicate a slight perseveration of autonomically-controlled function as reported by the individual authors, or they may indicate a difference in general reactivity to innocuous stimulating situations. In any case, the method gives a means of obtaining objective measurement of the reactivity of the patients to their environment, which will, we believe, yield data of considerable interest in the future.

In order to account for the findings reported in this series of papers, we do not feel that it is necessary to make any assumptions of a psychoanalytic nature. The variability of skin resistance during sleep is an evidence of autonomic involvement as is the inertia or "perseveration" which seems to be indicated during the waking hours in a function under autonomic control. It is quite possible to make an orthodox physiological interpretation of these autonomic effects, i. e., that they indicate an upset of normal homeostasis which has been described by Cannon. We may suppose that the disease process, the basic nature of which is unknown, has upset the homeostatic balance, so that, in place of the well-regulated, short, rhythmical waves of normal physiology, there occur large alterations of organic function and also unusual protraction of autonomic "reverberations" to external stimuli. Furthermore, if catatonic postures are controlled by central nervous centers, as has been indicated, it is quite consistent that the occurrence of such postures should also result from a functional upset of the interaction between these centers.

In this sense catatonic postures and perseveration may be regarded as psychophysiological reactions, dependent on functional nervous disturbances involving or involved in a malfunctioning mechanism of homeostasis.

SODIUM AMYTAL AS A MEANS OF OBTAINING CONTACT IN STUPOROUS AND UNCOMMUNICATIVE CASES

A Preliminary Report

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The use of the derivatives of barbituric acid as hypnotics first originated early in the twentieth century. During the past decade another of these derivatives, iso-amyl ethyl barbituric acid (amytal) was introduced for its sedative action. A few years ago its sodium salt, sodium iso-amyl ethyl barbiturate commonly known as sodium amytal, was offered for its hypnotic and anesthetic effect. One of the advantages of this new drug was shown to be the diversity of means of administration for it was found that it could be given orally, rectally, intravenously and intramuscularly and also that it exerts essentially the same type of action by any of these methods, except that by the intravenous route the action is intensified and more rapid.

During recent years studies have been made by several men of the sedative effect of this drug in neuropsychiatric cases.¹ In these reports it was noted that in the depressed, stuporous and catatonic conditions the authors stated that following a period of sedation some of the patients, upon awakening, appeared bright and talked fairly freely for a short period.

Because of this lucid interval some investigators² continued the administration of the drug at regular periods thus keeping the individual at a fairly even mental level for from 4 to 18 hours per day. During this time some knowledge of the mental content was obtained and psychotherapy and other methods of treatment were employed.

In keeping with the above investigations, the present writers in November, 1931, began the use of sodium amytal solely as a means of contact with uncommunicative and stuporous patients for gaining insight into the mental trend and not as a therapeutic agent.

Two methods of administration of sodium amytal were used by the authors. One, oral dosage at regular intervals and second, an intravenous injection followed at regular intervals by oral doses.

In the first method, the preliminary dose was 3 grs. in one dram of distilled water. Subsequent doses were 3 to 6 grs. in water at regular intervals, 10 a. m. and 8 p. m., daily. An additional dose of 3 to 6 grs. at 3 p. m., was added in some cases.

In the other method, the intravenous dose was $7\frac{1}{2}$ grs. dissolved in 5 c.c. of double distilled water. Each patient was placed in a reclining position. Then after proper sterilization of the skin the solution was injected at a rate not exceeding 1 c.c. per minute, timed accurately by means of a watch. In all cases the full dose of $7\frac{1}{2}$ grs. was administered. In the succeeding oral administration the same method as previously described was used except that 6 gr. doses were used at 10 a. m. and 8 p. m. An additional dose of 3 to 6 grs. was given at 3 p. m. in an attempt to maintain the patients at the level of contact with the lowest dosage possible.

In the following series of cases the authors made no attempt to select the material. All newly-admitted cases of the stuporous and uncommunicative type were treated by the methods described. It was found that in all but one case oral administration although increased to a total dose of 12 to 18 grs. in 24 hours did not produce adequate contact.

It was noticed that under the dosage used there was very little or no spontaneous speech by the patients but that in all but one case there was a response to questions. The period of response varied with the individual for as previously stated the initial doses were uniform.

CASE 1. G. M., white, female, married, age 32, Irish descent. Diagnosis: Dementia præcox, catatonic type; duration, 2 years.

This patient of Irish descent was married secretly because of pregnancy seven years previous to onset of the psychosis to a man of Italian descent. The husband was extremely jealous, and the patient's family objected to the marriage so there was much discord in the home. There were subsequent pregnancies the last of which terminated in miscarriage. Two years previous to admission the patient became irritable, accused her husband of infidelity, neglected her housework, complained of stomach trouble and refused to eat. Later she became uncooperative, resistive and mute. On admission she was resistive and non-cooperative. She held herself rigid and would hold awkward positions. She did not hold saliva but retained urine and feces. It was necessary to dress and undress her, spoon feed her and move her from place to place. When given attention and nursing care there was negativism. At times she picked at her fingers and clothing but at no time made any attempt to talk.

Sodium amytal orally—no contact obtained. *Sodium amytal intravenously*. Within three minutes the patient began to relax, laid her head on the pillow and watched the injection. Gradually she became drowsy and passed into a state of light narcosis. She slept for about half an hour, then awoke and began to answer questions coherently but with slight hesitancy. In answer to questions she denied her marriage, stated that she was single and insisted repeatedly upon giving her maiden name. Said that she had no husband or children. She gave her mother's address as her own and denied she had lived any other place. Additional questions elicited her correct age and some information concerning her own family history.

Under continued oral administration she showed some relaxation, fed herself and on a few occasions conversed with her husband.

CASE 2. E. R., white, female, aged 36, English descent. Diagnosis: Dementia præcox, catatonic type; duration, 12 years.

The onset occurred following an unrequited love affair with a married man. The patient gradually developed hallucinations, some apathy and later became mute. She has received treatment in various mental hospitals since the onset.

On admission she was extremely fearful, mute, rigid and negativistic. She displayed mannerisms, was untidy in her habits and it was necessary to spoon feed her. At times she became overactive, ran about, laughed and cried.

Sodium amytal orally—no contact obtained. *Sodium amytal intravenously*. The patient struggled for the first two minutes, then began to relax and in 3½ minutes began to yawn and passed into a light sleep. Within 20 minutes she awakened and began to cry. There was no response to any questions but violent crying for one-half hour. There was no display of fear. Following this period she slept for 10 hours.

Under continued oral administration she remained uncommunicative.

CASE 3. D. Q., white, male, single, 20 years. English descent. Diagnosis: Dementia præcox, catatonic type; duration, 10 months.

This young man, an only child, was retarded physically and intellectually in childhood. During the four years previous to admission his physical development was very rapid. He had difficulty in learning in school and never mixed with other children but preferred to be alone. There were periods during past few years when he would laugh without apparent cause. At one time said he was going to die and told the kind of flowers he desired. There was always a feeling of inferiority. A week previous to admission he refused to go out, would not talk and did not sleep well.

On admission he was uncooperative, sat quietly in a chair or stood in statue-like postures with a dull, vacant expression; showed some cerea flexibilitas, held saliva in his mouth and drooled. Was untidy in his habits. He obeyed some simple commands but made no attempt to talk or answer questions.

Sodium amytal orally—no contact obtained. *Sodium amytal intravenously*. Within two minutes the patient relaxed and rested his head upon the pillow. Shortly he became drowsy and slept for a few minutes. Upon awakening he began to respond slowly to questions, gave some account of his personal and family history but no formal trend could be elicited. He appeared much brighter, cooperated for some nursing care, then opened and read some letters he had received, giving the contents.

Under continued oral administration he showed some relaxation, interest in his surroundings and mail. He stopped drooling and fed himself but did not again converse.

CASE 4. A. B., white, female, married, aged 22, English descent. Diagnosis: Dementia præcox, catatonic type; duration, 2 months.

At the age of 17 this young woman married a man of different religion and descent. Following the birth of her first child she was repeatedly warned by her mother to avoid further pregnancies so within four years she had two miscarriages which apparently were induced. Two months following the last miscarriage she suddenly became over-active, over-talkative, noisy and assaultive. Then rapidly became quieter and talked only in monosyllables.

On admission she was uncommunicative but quiet and cooperative. On the fourth day she displayed some excitement, danced about, chanted, clapped her hands, removed all her clothing and became assaultive and resistive. These symptoms continued but she made no attempt to talk or converse.

Sodium amytal orally. Patient became quieter but no contact obtained. *Sodium amytal intravenously.* After three minutes she became drowsy and on questioning gave her name correctly. She also spoke of her love for her husband and his love for her. She told that she has one child of 4 years. After full injection she went to sleep and slept for a short period. Then she began to respond to questions, said that she just had a baby but the angels took it and would like to have another after a while. She next told that she had been nervous because of the loss of the baby but would not enlarge upon this statement. After observing a watch she gave the time correctly.

Under continued oral dosage there was some improvement in her conduct. She became quieter, fed herself, was neater in her appearance, displayed some interest in her surroundings and joined the physical therapy class. At times would answer simple questions and once requested an interview but gave no added information as to the trend.

CASE 5. F. N., white, female, single, aged 34, German descent. Diagnosis: Dementia præcox, catatonic type; duration, 3 months.

This young woman had a love affair during the past one and a half years with illicit sexual relations. She became incompetent in her occupation and finally stopped work. Very early one morning she arose and wrote letters to her father and mother. She began to laugh, apparently without cause and soon passed into a stupor for three days. Then she became overactive, talked of suicide and believed she was being talked about and spied upon.

On her admission she showed a dull, listless expression, was resistive to nursing care and had to be spoon fed. She sat or stood in a rigid posture although there were some periods of partial relaxation. She was clean in her habits, negativistic and at all times remained mute.

Sodium amytal orally—under repeated questioning would occasionally respond with yes or no. There was no change in her conduct.

Sodium amytal intravenously. At first she struggled against the injection but after one minute began to relax and after three minutes was quite drowsy. After five minutes she was in a state of narcosis. Following the resistive period the patient gave the information that she believed herself to have been married for several years but could not give her own or her husband's name. After sleeping for three hours she awoke, was more cooperative and took an interest in her surroundings. Expressed ideas of poisoning and a desire to die. Believed that people were against her and that she was too tall.

Under continued oral administration she continued to show some interest in her surroundings, personal appearance and seemed less depressed. There was some response to

questions from time to time and she displayed an interest in the visits of her relatives and in occupational therapy.

CASE 6. D. R., white, female, married, aged 46, mixed descent. Diagnosis: Involuntary melancholia; duration, 1 month.

At first this woman complained of a burning sensation in her mouth. Examination by a physician showed her to be anemic so she was placed on a liver diet. Shortly after, the treatment was refused, she became very uncooperative, would not eat and at times became very excited. Soon she became very depressed and refused to speak.

On admission she was resistive, uncooperative and uncommunicative. It was necessary to spoon feed her and at first she stood about displaying no interest in her surroundings, would not void but later became untidy and very careless in her appearance.

Sodium amytal orally. A short time later answered questions readily but did not speak spontaneously. She described a delusional happening to her husband which resulted in his death and the loss of all worldly goods. Also gave a fairly coherent story of her early life, the early stages of her present illness and her inability to retain food.

Under continued oral administration gave the additional information that she wanted to die and would be better off dead.

CONCLUSIONS

In view of the results in the series reported it is felt that some deductions can be made at this time. It is appreciated that this series is too small to warrant any definite statements but on the other hand there is sufficient evidence for some conclusions to be drawn.

1. Sodium amytal furnishes a method of obtaining contact with some stuporous cases of the functional psychoses.
2. Uncommunicative patients may be affected by sodium amytal so that data of the mental content may be obtained.
3. The intravenous method produces a better result than the oral, although one case showed adequate response to the latter method.
4. Continued oral administration following intravenous injection did not result in producing as good contact as obtained immediately after intravenous dosage.
5. The use of a standardized dose does not give the best results. The dosage should be varied in accordance with the individual tolerance.

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ACID BASE EQUILIBRIUM IN EPILEPSY

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After observing a number of grand mal attacks one cannot fail to be impressed by the apparent oxygen deficit accumulated by the epileptic at the time. During the outstanding motor phases, the tonic and clonic, respiration is markedly interfered with. During the tonic phase the diaphragm is held rigid, oftentimes, and the same tonic condition may obtain in the other muscles of respiration. Also in the clonic phase while there is some exchange of gases, due to the clonicity of the movements and the obstruction to the upper air passages the physiological process is not very effective. Oftentimes material is regurgitated from the stomach and together with the frothy saliva present interferes with ingress of air and contribute to a considerable extent to the bronchopneumonia that may complicate the epileptic crisis.

Cyanosis is usually associated with the attack and becomes progressively greater. The veins appear engorged and the patient is apparently under great strain. Vasomotor instability has been advanced as the reason for the so-called vascular spasms in the brain, but the dusky red cyanosis, progressively noted in the face is undoubtedly due to the cyanosis of incomplete oxidation.

Observation made by the writer on over 100 uncomplicated grand mal attacks showed the motor phase to be subject to some variation in time, but rarely less than one minute and not at all frequent for more than three minutes. The average duration of the grand mal motor phase probably would not exceed two minutes from initiation of tonic phase to the end of clonic phase. There were more attacks under one minute than over three minutes.

In practically every case this apparent oxygen deficit was accumulated and it is the writer's opinion the chemical changes brought about exercised an effect such as to terminate the convulsion. In status epilepticus, one also observes periods such as this in which there is an apparent slowing up of the motor discharge, but the chemical changes are apparently insufficient to completely overcome the exciting cause. Petit mal attacks apparently do not fit

into this consideration as the cyanosis and apparent oxygen deficit are not conspicuous. MacCleod¹ in his textbook, "Physiology and Biochemistry," refers to the oxygen deficit accumulated by athletes and states that a deficit of as much as 30 liters may occur.

The outstanding chemical change during an oxygen deficit of this type is an accumulation of lactic acid in the tissues. This is due to a breaking down of glucose in liberating energy (MacCleod).

Lennox states that during and immediately after seizures as a result of asphyxia and muscular contractions there is a temporary condition of acidosis. This acidosis is undoubtedly to some extent due to the accumulation of lactic acid resulting from incomplete oxidation during the crisis. This condition differs from the ordinary anoxemia in that there is no hyperventilation and the CO₂ combining power of the blood is thus reduced. Lennox cites the case of a patient whose seizures were controlled by rebreathing into a respiratory bag. Production of petit mal attacks in certain epileptics by hyperventilation is not uncommon.

Hyperventilation results in a loss of CO₂ from the lungs and an increased CO₂ combining power of the blood. Oxygen deficits are balanced, lactic acid is converted to glucose, carbon dioxide and water, and there is some shifting of the acid base balance to the alkaline side. In these cases alkalinity apparently favors the occurrence of a seizure either per se or associated with some other factor brought about by the hyperventilation.

Several experiments designed to influence the acid base equilibrium of epileptics by the use of acid residue or basic residue salts have been made from time to time. I quote Lennox and Cobb,² "A continued artificial alkalosis may not be associated with an increase in seizures, but any sudden upsetting of the acid-base balance toward the alkaline side may have such an effect." (P. 120.) Salts of the type of sodium bicarbonate, etc., have been used orally or intravenously. Attempts to swing the acid base balance to the acid side by the use of ammonium, chloride, sodium acid phosphate, etc., have been made. J. H. Gamble³ states: "The kidneys are able to furnish from urea (elaborate) enough ammonia to neutralize acids (as in ketogenic diet and when acid residue salts are used) and following the initial weight loss (as great as one kilogram) we

see the loss regained in a few days." This fact undoubtedly accounts for the failure to control seizures for any appreciable time by attempts to maintain acid increase in the acid base balance. I do not mean to imply that increased acidity alone inhibits seizures but apparently it is associated with a diminution of seizures.

The influence of sodium chloride in epilepsy has been considered by several and the effects of salt poor diets studied as well as the effect of massive doses of sodium chloride. Proescher⁴ states, "The chlorine balance in adults shows a marked disturbance. Experimental evidence points to the existence of an abnormal tendency to retain sodium chloride. In some cases moderate or large doses of sodium chloride have the tendency to favor convulsive attacks or equivalents." The retained sodium chloride has been shown pathologically to be stored largely in the integument. A large sodium chloride intake tends to increase the fluid intake. There are often marked variations in the water intake at this time and the renal output of both water and sodium chloride may fluctuate.

What influence the retension of sodium chloride may have on the acid base balance would depend on the body's ability to split the sodium chloride molecule and rearrange its components with other radicals. We are all familiar with the fact that the body is able to produce hydrochloric acid, as in the stomach and unite the sodium with other acids often of an organic type such as carbonic acid, etc. The body may also produce basic radicals such as ammonia, principally in breaking down urea. Such synthesis must be endothermic in the case of stable salts, such as sodium chloride and the mechanism can only be guessed at.

Byron⁵ states that sodium, potassium, calcium and magnesium together compose the total fixed base value. Sodium is largely extracellular and apparently the principal mobile salt. It is the principal basic salt of the body fluids.

Temple Fay⁶ considers the cerebrospinal fluid the largest reservoir of this extracellular fluid and refers to it as the interstitial reservoir. Potassium is considered to be present in the cells to a greater extent and apparently is much less mobile and not subject to the fluctuations of sodium. While calcium is an important fac-

tor in tetany and numerous studies of its concentration in epilepsy have been made, the low level found in tetany is not general in epilepsy. The role of magnesium in convulsions has never been established and its importance from an acid base balance standpoint is probably slight, as quantitatively it is less important. It is then fairly well established that sodium is the alkaline subjected to the greatest fluctuation and probably is responsible for changes in the acid base balance in epileptics to a greater extent than any other inorganic salt.

In epilepsy three conditions are so intimately bound up that it is difficult to separate one from the other and state. "This is the factor of basic importance." These conditions are chloride retention (already referred to), acid base balance and edema. Lennox⁷ examined the blood and spinal fluid of 120 epileptics and was unable to observe any striking variation from the normal between seizures. But he states there is a definite relationship between the acid base changes and seizures, a condition of alkalosis tending to increase and acidosis to decrease seizures.

Gamble³ states, "The excretion of water on one hand and of the fixed alkaline base on the other is so ordered that the concentration of these bases in the several body fluids is maintained at a constant level. Thus a gain or loss of base will entail a gain or loss of water in proportion or vice versa." This observation is in part borne out by results of diets used as a therapeutic measure in epilepsy. Starvation and dehydration both show a loss of water together with a tendency to acidosis or loss of acid base balance in the direction of increased acidity. But the body's mechanism for controlling acid base equilibrium is quite effective and the technique for registering small changes in reaction has not been able to support this assumption in many cases. Buffer salts in the body fluids and the ability of the body to metabolize proteids in such a manner as to neutralize either excess acid or base tend to maintain constant levels between seizures and control the acid-base balance unless the shift is quite sudden.

Patterson^{8,9} found the average Ph of the spinal fluid to be 7.327 and the carbon dioxide combining power to be 60 volumes in 50 epileptics. These figures approximate the normal. In another series

of patient he reports a Ph of 7.75. Bigwood¹⁰ found an increased alkalinity of the blood serum before and during an epileptic seizure. Geyelin¹¹ reports there is no Ph curve definitely characteristic of epileptics but the patients show a distinctly wider range of Ph from day to day and from hour to hour than does the blood of normal persons.

Neurosurgeons have frequently commented on the wet brain in epilepsy, dilatation of the ventricles and the appearance of increased pressure in the cranial cavity generally. The beneficial effect of withdrawal of cerebrospinal fluid in status epilepticus needs no comment and such a procedure is a well recognized practice. Various explanations have been offered for the increased water retention in the neural tissue and in the cerebrospinal system. Studies of the cerebrospinal circulation with especial emphasis on the Pacchionian bodies and the arachnoid villi have been made. Many have described fibrosis, atrophy and appearance of general insufficiency to these structures. Others have been unable to confirm these findings in the large proportion of epileptics.

Temple Fay⁶ reports a series of cases treated by the so-called dehydration diet in which the water intake is markedly decreased. He reports that the generalized and stuporous phases of epilepsy have been relieved by dehydration and the seizures controlled in a certain proportion of his patients. This dehydration undoubtedly was accompanied by the loss of a proportion of the fixed base of the body and the tendency to acidosis as is commonly observed. The interrelation of the acid-base balance and edema cannot be avoided and tends to obscure the effects observed.

R. M. Wilder¹² proposed the use of a ketogenic diet as a palliative measure in epilepsy considering that the aceto acetic-acid elaborated might act as a sedative similar in action to drugs of the barbital group. A great many workers have carried on experiments along that line since and many conflicting reports of its success have been published. All agree it has merit. Its effect however is probably not along the lines he had in mind when suggesting its use.

It consists essentially of a high fat diet with a maintenance protein and low carbohydrate intake. The fats are incompletely oxidized and when a successful ketosis results, such products as beta-

oxy-butyric acid, aceto-acetic and acetone are found in the urine and are present throughout the body. In the ketogenic diet there is a negative balance of calcium and phosphorus. Barborka¹² reports good results in 100 cases. He made up the calcium and phosphorus deficiency by feeding calcium lactate. He states ketosis taxes the proteid molecule for the anti-ketogenic fraction; ample proteid, therefore, should be contained in the diet, at least 1 to 1.5 grams of proteid per kilogram of body weight.

The resulting ketosis resembles an acidosis in some particulars such as a decrease of the carbon dioxide combining power of the blood, decreased blood sugar and the excretion of acetone. Starvation long recognized as being of use in the effecting of the diminution of seizures may also owe its effect to the acidosis engendered.

CONCLUSION

There is some evidence of an increased Ph value in the body fluids of epileptics, particularly before seizures.

This increased Ph is often accompanied by the retention of water.

Convulsive attacks may serve a compensatory purpose in some cases and tend to reduce the increased Ph value.

Diets such as the ketogenic, the starvation and the dehydration may aid in maintaining normal Ph values of the body fluids.

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THE RELATION OF OCCUPATIONAL THERAPY TO MEDICINE*

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Medicine has reached its present eminence by a succession of steps, the first of which were taken before the dawn of civilization. We can scarcely conceive of those early days when the nature and functions of the various organs of the body were unknown; when the causes of diseases were shrouded in mystery; when treatment was a form of magic and had no relation to the diseases treated.

As the race developed, as knowledge increased, as thoughtful men here and there studied the human body and observed the effects of disease, discoveries of great importance were made, and slowly the facts needed for a comprehensive science were accumulated.

We speak of Hippocrates who is believed to have lived about 400 B. C. as the Father of Medicine because he discarded magic and introduced rational methods in the observation and treatment of disease. Had men of the type of Hippocrates been more numerous in the centuries that followed and had their ideas and discoveries been handed down to their successors without interruption, mankind would not have been kept waiting until the close of the 19th century for adequate knowledge of the human body and of the diseases that affect it.

The great clinician, Galen, the last of the Greek line of medical geniuses, appeared about 500 years after Hippocrates. Thereafter, medicine waited nearly 1,400 years for another brilliant genius to lead the upward way.

With the renaissance came new interest in medical study. Medical schools were established and earnest efforts were made to learn more about the human body and the diseases of man. In 1543, Vesalius produced the first accurate human anatomy; in 1628, Harvey gave the first demonstration of the circulation of the blood. Other gains rapidly followed, but we had to wait until 1867 for Lister to introduce antiseptic surgery, and until 1877 for Pasteur to demonstrate the germ theory of disease and point the way to

*Presented at the annual meeting of the American Occupational Therapy Association at Philadelphia, September 24, 1934.

the prevention of communicable diseases. Thus the road was finally opened for the remarkable development of medical science which has occurred during the past 50 years.

Occupational therapy, although a branch of medicine, has an interesting story of its own. Its value as an adjunct to medicine was recognized by Galen and others in the second century of the Christian era. Subsequently, it was put into use in a crude way by a few physicians in various parts of the world. In its modern form, however, it is essentially a development of the last 30 years.

Notwithstanding its importance as a curative agent, occupational therapy, unfortunately, has not yet won a place in the consciousness of a large part of the medical profession. In Fielding Garrison's voluminous work on the "History of Medicine" which covers the development of medical science down to 1928, I find no mention of occupational therapy. In Nelson's Encyclopedia of Living Medicine, (Living Medicine, mind you) I find only two or three casual references to occupational treatment. Apparently some of the writers of medical literature have not discovered us. How they could have missed us during the past 10 years is beyond my comprehension.

Regardless of the textbooks and the encyclopedias, the fact is, occupational therapy for several years past has had a large part in institution medicine and is destined to have a still larger part as its efficiency becomes more widely known and as its adaptation to the treatment of various ills becomes more specific.

The modern physician is a scientist. With the aid of a vast array of instruments of precision; with the help of elaborate psychological, physiological, serological, bacteriological and pathological laboratories; with the assistance of a vast medical literature, he makes a comprehensive study of his patient and, wherever possible, reaches an accurate diagnosis. He must then decide on a course of treatment. Here he is not on secure ground, for therapeutics has not kept pace with the other branches of medicine. It was Osler that remarked that "From Hippocrates to Hunter the treatment of disease was one long traffic in hypotheses." Through trial and observation and through successes and failures much has been learned, and many treatment procedures have now a scientific basis. In

doubtful cases the wise doctor proceeds with caution and refrains from doing harm to his patient. His primary purpose in treatment, of course, is to restore so far as possible, the normal functioning of the various organs of the body and to bring them into harmonious relations with one another. He has many systems of treatment to choose from, such as surgery, drug therapy, electrotherapy, hydrotherapy, chemotherapy, thermotherapy, radiotherapy, heliotherapy, serotherapy and occupational therapy. As each of these offers a large number of procedures which may be used singly or in combination, the therapeutic possibilities before the doctor are very great. In many cases, however, the treatment must still be more or less of an experiment. If it does not cure it may relieve and if it does not relieve it will probably do no harm. If it does harm the treatment can be promptly changed. The old saying that the doctor buries his mistakes does not apply to the modern physician. Even though success in treatment is often impossible it is deemed better to make a rational attempt than to do nothing at all.

Drug therapy which early superseded treatment by magic is still generally used. However, on account of the uncertainty of drugs, many practitioners are supplementing them by other forms of treatment and are relying more and more on rest and general hygiene.

Occupational therapy is gaining in favor because it can be successfully used alone or with many other forms of treatment. It is never a dangerous treatment and rarely does harm even to a slight extent. The reactions of the patient in the course of treatment can be easily observed and untoward symptoms promptly recognized. Moreover, occupational therapy when wisely employed will include a hygienic program of work, recreation and rest.

Looking more closely at occupational therapy as it has recently developed, we see that it affords the physician a wide range of choice of procedures. So numerous have these become and so varied are their application that it now requires considerable knowledge and experience to prescribe occupational therapy successfully. It sometimes happens that a physician who has had little contact with occupational therapy is required to write prescriptions for its use. He may seek to inform himself as rapidly as pos-

sible or he may rely on the knowledge and wisdom of his therapist, or he may prescribe in general terms. By these makeshifts, he may get by without difficulty, but medical direction in occupational therapy implies expert knowledge as in any other form of therapy. This Association has rightfully recognized the true place of occupational therapy as a part of medicine and has insisted that the treatment be given only by trained therapists under the direction and guidance of physicians. The therapist receives a thorough course of training before she undertakes to administer treatment, but how does the physician who prescribes and directs the treatment get training or experience for the task? Ought not those responsible for the training of physicians provide for some systematic instruction in the theory and application of occupational therapy. I realize that the curriculum of the medical school is overcrowded and that some subjects must be superficially taught, but I maintain that for the majority of physicians, therapeutics is the most important branch of medicine and should not be slighted to make way for general subjects that are forgotten as soon as they are passed.

If physicians are to continue to prescribe occupational therapy, as they undoubtedly will, some of them must learn more about it. A prescription should be based on knowledge and should be as specific as possible for the treatment of the individual patient. If the patient is an orthopedic case the prescription should indicate the parts to be treated and the method and time of applying the treatment. If the patient is tuberculous, the prescription should contain definite detailed instructions to the therapist. In mental cases, so many factors are involved that the therapist needs special guidance. The physician should never assume that the therapist knows better than he what should be done, even though that may be the case. Nothing should be left to chance.

It must be remembered that the prescription merely starts the treatment. The results should be watched day by day by both physician and therapist. The patient's condition, in some cases, changes rapidly. A prescription written today may be of no value tomorrow and even worse next week; in fact positive harm might result if the treatment prescribed were continued indefinitely. The ther-

apist naturally will be alert to note unfavorable symptoms and to advise the physician concerning them; but the physician is responsible for the treatment prescribed by himself and should not rely entirely on the therapist for information relating to his patients. The physician should know the effects of the treatment by direct observation and examination of the patient. Only when physician and therapist cooperate fully in the individual treatment of patients will the ideals of our Association be realized.

In closing this brief paper I wish to say a word about the advance of occupational therapy as a branch of medical science. Tremendous gains have been made in recent years both in theory and practice. In a new field of work such as this, progress is comparatively easy. After a time a degree of stabilization is reached which may serve to retard further progress. Perhaps in occupational therapy we are now approaching such stabilization; some years may elapse before we reach it. Be that as it may, provision for research work in occupational therapy should be made so that the progressive movement might continue unabated. It is to be hoped that some of the enterprising physicians who are directing occupational therapy in hospitals will be moved to undertake promising lines of research in this field. Occupational therapists may also become research workers under the guidance of the physician.

If it be given to any one of you to learn how to cure two patients where only one now is cured, the generations will rise up and call you blessed and you will be given a place in the medical hall of fame which now contains many of the world's greatest benefactors.

PSYCHOTHERAPY IN THE OUT-PATIENT CLINICS*

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In treating the various functional disorders that present themselves in the out-patient clinic an essential requirement is the establishment of a favorable emotional relationship between the physician and the patient. It may be called suggestion or designated as affective therapeutics or in other terms. It is the same agency which underlies the successful general practitioner's hold upon his patients and their unquestioning faith in his ability and advice. In the case of the general practitioner it is developed through years of contact with the patient and his family and it operates often without his knowledge and in spite of his belief in the sole efficacy of the remedy he prescribes.

The clinic physician on the other hand, is fully aware of the factors at work, and, lacking the prestige engendered by long professional contact as in the case of the family physician, he must utilize all features of the clinic setting and his handling of the case to gain this emotional response.

The clinics should preferably be held in the out-patient department of a general hospital or in a health center. The advantages of their location in the general hospital dispensary as compared with the isolated psychiatric clinic are the facility for consultation with other departments of the clinic and the fact that patients go there more readily to seek advice concerning what they consider a delicate matter, viz., mental symptoms, because other forms of disease are also treated there. In most of the clinics of the Hudson River State Hospital the parole and community patients are seen at the same clinic. The disadvantages of this plan are obvious. In spite of this the persistency with which some patients await their turn and revisit the clinic brings to mind the possibility of a favorable influence in these numbers, just as we often hear patients boast of the length of time they had to spend in the crowded waiting-room of a private practitioner.

In Poughkeepsie we have within the past year arranged a sep-

*Read at the Interhospital (down State) Conference held at the Psychiatric Institute, April 21, 1934.

arate clinic for community cases, located in a general hospital dispensary. Patients are seen by appointment, so that there is no evidence of tension or hurry in the waiting room or in the consultation room.

If a history is not sent by the referring agency, it is obtained by the social worker at the clinic. One hour is preferably devoted to the first consultation by the physician. The meeting of the patients should be cordial and the conduct of the consultation such as to make the patient feel at ease. The patient seen at these mental clinics is usually very sensitive to these influences. Impatience and hurry due to pressure of many cases and having one's mind on the railroad time table militate against success in therapy. Full attention should be paid to the patient. The taking of notes should be minimal and the purpose in doing so explained to the patient. This was rather forcefully impressed upon the examiner by a patient who had had previous clinic treatment and who on the present occasion was advised that her problem would require repeated clinic visits. She at once replied that she could see no use of coming to clinic because all that the doctor had done was to write.

During the first consultation or early in the course of treatment a careful general physical examination should be given. This is necessary to evaluate the possible physical factors at work and also to satisfy the patient, which is especially important in those cases presenting somatic complaints. In case of doubt or when special examinations or laboratory tests are indicated, other clinic departments are consulted. When it is finally concluded that there is no evidence of organic basis for his somatic complaints, we explain this fact to the patient but impress upon him the fact that we still take his complaints seriously, illustrating by simple examples, the influence of emotion in producing somatic effects, and explaining that mental conflicts may be responsible for various physical complaints. Many of these patients have been treated by somatic-minded practitioners, who, finding no organic evidence, have dismissed their complaints as imaginary and instructing them that there was nothing wrong and advising them to forget it.

The attitude of the clinic physician saves the patient's self-

respect, makes him feel he is being understood and influences him to have confidence in the physician.

Physical conditions of course are appropriately treated or referred for treatment but the relative significance of the condition must be carefully explained so that the patient does not feel justified in his neurotic complaints on this physical basis.

In cases when the need is apparent it is explained that an extensive and detailed psychological survey of the patients' life is essential and that this will require many return visits. In treating cases of this type, no pretense is made either to the patient or in the mind of the examiner that psychoanalysis is being carried out. The patient however, is given careful and detailed instruction similar to that which precedes psychoanalysis and free-association is utilized as much as time permits.

Due to the long interval between interviews in cases seen at clinics remote from the hospitals, the therapist has to size up the situation and act as adviser, upon insight gained by incomplete but apparently significant facts. In the neighborhood of the hospital, where the opportunity for more frequent interviews is possible by seeing patients at the hospital as well as in the clinics, the method of free association in eliciting information can be used more extensively.

The writer presents the following cases seen by him at clinic during the past year, to illustrate some of the problems that present themselves at the out-patient clinics and some features of their management and its results.

Mrs. M. S., 32 years old, visited the clinic March 8, 1933.

This patient developed what was considered a psychoneurotic reaction of the psychasthenic type, coming on in December, 1932, in relation to the illness of her mother. The patient cared for her mother who was stricken with apoplexy and developed a marked feeling of anxiety regarding her mother's condition, felt quivering sensations through her body which she thought was noticeable to others and entertained ideas that she was not doing all she could to help her mother. In association with this she developed various phobias, dreaded to be alone, and entertained fears of death, not concerning herself but others. She hesitated to look at newspapers, fearing she might see death notices. She denied that these applied definitely to her mother. Her condition grew so serious that she had a dispute with her cousins who visited her mother and she became so emotional that she shrieked in their presence and because of these uncontrollable emotional outbursts she had been unable to visit her mother for several weeks prior to her first clinic visit. At a later interview the patient reported that she was disturbed by the memory of an incident

that occurred over two years before when the patient had a dispute with a friend of the family in the presence of patient's mother, who took the part of the friend. Shortly after the mother became ill with neuritis and the patient's sister later told her that her mother had a stroke as a result of that argument. The patient disregarded the remark until the present illness. From further remarks of patient it became evident that a popular misconception concerning the fatal issue of a third stroke was connected in her mind with this former incident and the mother's recent illness. At a later interview she spontaneously expressed her belief that many fears and ideas could be traced to childhood. She believed she was afraid of death because her father always had shown the same fear, likewise her sisters. She traced a fear of fire to childhood. This patient visited the clinic during 10 months, on 11 occasions. A definite improvement has been noted. She at first feared to come alone and was accompanied by her husband, but this fear soon disappeared and she visited the clinic alone. She grew more stable emotionally.

Physical examination at the first interview revealed some fullness of the thyroid, vasomotor disturbance and rapid pulse, basal metabolism test shortly after was plus 62. The patient said she was very tense and fearful during the test and said she was afraid when a repetition of the test was suggested later. At her last clinic visit a little over a month ago she said she no longer had a fear of the test and would soon go through with it. The response to the psychogenic approach without aid of medication would indicate that the evidence of hyperthyroidism was secondary to a state of anxiety and not dependent on glandular pathology.

V. H., 20 years old, single, visited the clinic November 8, 1933.

He gave a history of spells of nausea after eating and pain in the appendix region on walking, for over a period of one year. During the mental examination he further specified that the nausea came on when he left home to go to work; that he was "sick and disgusted" with his job, that they brought in college graduates and gave them jobs at \$30 and \$40 a week leaving him without advancement and he expressed his desire to quit the job. He had been employed as file clerk with the Equitable Insurance Company for two years but during the last year worked irregularly because of his "stomach trouble" and lost interest in the work. He had consulted several physicians one of whom diagnosed tuberculosis of the spine, which was ruled out after other consultations. In April, 1933, appendectomy was performed. Later two other physicians diagnosed his condition as "nervousness." During the mental examination it was determined that these nauseous spells were attended with much anxiety, especially recently and that there was an accompanying tremulousness and a fear of choking. One night he had an attack of trembling of arms and legs and they became cold as ice and he lost the use of them. Then the patient admitted that for a year he had been having sexual intercourse with a girl at her home at intervals of once or twice a month, practicing coitus interruptus under apprehensive and uncomfortable circumstances. Since the patient readily discussed this sexual history and since the duration of this faulty sex activity and the duration of his symptoms were synchronous, most of the treatment part of the interview was devoted to explanation and advice on this score.

When he visited the clinic two weeks later he reported that his nausea had considerably diminished. After a discussion of his occupational dissatisfaction he seemed more agreeable to accept the situation. At a third visit a month later he stated that he felt much better and in general felt happier. He had only a few mild spells of indigestion which he felt were due to dietary indiscretions.

There were other factors in this case, such as separation of parents at age of two, remarriage of father a few years later, patient residing in his home, neurotic traits in a brother; but these were considered of minor importance from a therapeutic viewpoint.

Another case seen recently presented many similarities to the case just described. He is a young man of 24, who gave an account of gastric distress which often caused him to awaken at night in a state of panic. He gave a sexual history identical with the previous case. In addition we learn that two weeks before his first visit to the clinic he became dizzy, faint and nauseous on the subway and was unable to ride on the subway since and thus was unable to go to work. Shortly before this he had planned to marry a girl he had known for four years and this was prevented by the loss of his job. Similarly two years previously he lost his position soon after a date had been set for marriage. The patient's father is a cripple and alcoholic, unable to work and they are constantly quarreling. The support of the family depends upon him and his brother. Thus the case appears to present a neurotic mode of solving a conflict between his attachment to his home and mother and a feeling of responsibility in helping her, and the desire to marry.

Anxiety neuroses like the cases just cited seemed to show very favorable and fairly prompt response to clinic visits and to explanation of the psychosexual factors at work and correction of precipitating errors.

The following case is of interest in a negative sense. She is a woman 37 years of age who has been married for over ten years and has three children. While pregnant with the first child, she developed an obsession which caused her to drink excessively, to the point of distress many glasses of water. She entertained the idea that this was a sacrifice for her mother, believing that she could prolong her mother's life to the extent of the number of glasses taken, each glass representing a year of life. This compulsion became quiescent shortly after the birth of the child, but again during the second pregnancy, she developed a similar compulsion, this time however, with some modification. Previously she had considered that the distress due to drinking was sufficient sacrifice but now she associates the thought of choking with drinking. She associates the idea of breathing at the same time that she drinks and was interested in the possibility as to whether one could drink water and at the same time cause it to go up into the nose.

She is obsessed with these thoughts so that she has been unable to interest herself in ordinary social contact or in the full care of the household. On the surface this appeared to be founded on some guilt ideas relative to wishes against her mother in early life, for she appears to have shown an exaggerated attachment to, and concern for her mother, having felt compelled before marriage to remain at home with her rather than to go out with other boys and girls.

Before her marriage to her present husband, she kept company with a young man and broke the engagement, according to her statement, because he wanted to live in another community which would mean separation from her mother. She always emphasized her self-sacrificing nature.

The patient's father was described as a high strung, irritable individual and one of the patient's sisters was admitted to Rockland State Hospital last year where she was first diagnosed as a case of catatonic dementia præcox, but when she was paroled she was considered a case of manic-depressive psychosis, depressed type. Our patient blames

herself for the onset of her sister's illness because that illness began when they moved from Providence, R. I., and our patient feels that it was her insistence that caused the move.

During July, 1933, the patient of her own accord consulted two surgeons in Poughkeepsie. One advised an operation for perineal repair, suggesting the belief that the mental condition depended in large measure upon pelvic irritation. The other surgeon consulted saw no indication for operation and thought that the underlying difficulty was of an endocrinological nature and suggested that the patient consult Dr. Timme in New York City. On August 31, 1933, a letter was received from Dr. Cannaday, an associate of Dr. Timme, who reported that he had seen the patient on August 2. He reported as follows: "From an endocrine standpoint, she is a dyspituitary, dysthyroid and premenopause type of case. The x-ray of the skull did not show any pituitary abnormality." She was placed on the following treatment: Capsules containing Armour's pituitary anterior lobe, grains two and whole gland grains one, to be taken twice daily one hour before meals. Lutein, two grains to be taken daily after lunch.

Dr. Cannaday also reported her unwillingness to pursue any course of treatment for any length of time and she would frequently suggest to him different things she thought should be done. This same tendency was noted at the clinic.

This patient showed a pronounced degree of anxiety and depression and was frequently urged to enter the State hospital, or if she could afford it, some private institution. She always refused to follow this advice. Due to her depression it was felt inadvisable to probe into her difficulties to any extent and her compulsions were generally discussed in a superficial way, giving encouragement to which she appeared to react favorably for a brief period. She also received bromide medication.

The next case is one of schizophrenia in a single woman (R. A.) of 36 years who visited the Poughkeepsie clinic June 20, 1933, in response to a news item in the local paper. She at first presented her problem as mainly a physical one, but after a brief preliminary interview she became more communicative regarding the mental side of the picture. The onset of her condition occurred two years previously, soon after her mother's death. They had lived in California and she came east at that time. She developed various somatic complaints and had to give up her position as teacher. She had various ideas of reference and entertained the delusion that ordinary impersonal statements in the local papers referred to her and that this was done to annoy her. She was very inhibited, sensitive, introspective, but after several clinic visits she gradually became more frank. Knowledge of her early life and her attitude toward events at that time were more accurately learned through a diary which she had kept and which she voluntarily gave to the writer for that purpose. She also became more cooperative in presenting dream material and discussing it freely. Her life had always been extremely narrow with close emotional ties to the family, marked admiration for her father, but antagonism toward her mother. On one occasion she spontaneously confessed masturbation which she felt was one of her main difficulties and she seemed to be relieved by guilt-diluting talk concerning this matter and to profit in general by discussing some erroneous ideas she had entertained concerning sex matters. In the beginning she described herself as feeling very inadequate and she said she felt as though she were disintegrating. It is felt that she gained considerable insight into her personality and the genesis of her faulty adaptations through these frequent clinic visits. She is still continuing to visit the clinic and recently obtained work in the public library and subsequently a better position through the CWA in pre-school activities. She changed her

position because the former work was unstimulating. Although her schizoid personality is still, of course, quite evident, she has gained more poise, appears better physically, has no somatic complaints and believes that her ideas of reference were without foundation and, likewise, the fantastic delusions regarding the newspaper articles.

Occasionally quite disturbed psychotic cases are also seen in the clinic and in some cases have been satisfactorily managed in this matter.

Last November a woman of 64 was seen at the Troy clinic who presented a typical picture of agitated depression which appeared to be precipitated by worry regarding economic stress. She had had an attack of depression 18 years earlier following the death of her mother and it lasted for one year. When seen at the clinic she was very tense, restless and agitated, wringing her hands and repeating expressions of hopelessness. There was no evidence of any history of or tendency to self harm. She responded surprisingly well to a discussion of her activities, accepted the advice given and in addition was given moderate doses of bromide. When she visited the clinic the following month she appeared much more calm and her sister corroborated the improvement in her condition as observed at home and both were very appreciative.

Reactive depressions of a mild character are fairly common among the clinic cases and those seen have been almost always dependent upon economic stress and generally it was observed that those who returned to the clinic showed benefit. The explanation of these favorable results seems to be the fact that they merely needed the stimulus of advice and encouragement regarding the proper use of their enforced idleness, the stimulus having behind it the authority and prestige of the clinic.

The assistance of the social worker is often highly desirable in the management of clinic cases, to help carry out the recommendations of the clinic in reference to the adjustment of the patient in the community.

In conclusion, it may be said that psychotherapy of this type is more art than science. Everything else being equal this therapy will be successful in direct proportion to the enthusiasm of the physician and his alertness to the significance of the various psychopathological evidence that presents itself during the treatment interviews. The writer's participation in clinic work has been too brief to present any final tabulation of results in the treatment of these cases. With a larger number of cases and a longer period of treatment and an investigation of the progress of cases some time after they have been closed, it would be possible to analyze results and to evaluate the various therapeutic factors that entered into these results and their duration.

THE SURGICAL TREATMENT OF "CONSTITUTIONAL PSYCHIATRIC DISORDERS"*

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The axiom used at this clinic has been to consider that the surgical treatment accorded psychotic patients should be the same as though they were patients in a general hospital; the indication for operation being the same as would be considered proper for a normal mental individual.

An attempt is made to correct all remediable physical defects, regardless of whether they be considered as etiological factors or merely incidental to the psychosis.

The patients we have to treat are those, that in spite of mental hygiene or psychotherapy, have developed a psychosis, and we are now confronted with the problem of doing something to ameliorate or cure the process.

Physiologists speak of summation of stimuli. We may speak of the summation of etiological factors; the removal of one or many may be necessary to effectuate a cure. The surgical removal of the site of infection may partially restore the mentality, while a mental complex or other psychological process may still need correction. It is more probable that there is a combination of causes rather than a single factor which produces the psychotic state. The surgical removal of one of these factors thereby lessens the load the individual is carrying.

Dr. Kirby states, "That toxemia, infection and other physical conditions are often factors which precipitate a nervous and mental breakdown, no one will deny, but there are many cases in which such factors cannot be shown to exist, and still others, in which, if infections are present, they are subsidiary to other causes, as shown by the fact that their elimination does not result in a cure, whereas attention to other causes will often result in restoration of the patient's health."

In the treatment of disease, quite often a specific etiology can be listed and when this is known, a great advance has been made

*Read at the Interhospital Conference held at the Psychiatric Institute, April 20, 1934.

toward the ultimate specific treatment. Again, in psychic disorders, the etiology in the greatest percentage of cases is not known. Therefore, the treatment figuratively speaking, is more or less symptomatic.

At the time of the height of the controversy on the focal infection theory as an etiology of schizophrenia, Kirby and Kopeloff stated, "We have compared two groups of patients living under the same hospital conditions and in whom foci of infection were noted. One group received the usual hospital treatment; the members of the other group received surgical treatment to remove the foci of infection. No essential differences were noted between the two groups as regards mental improvement or recovery; in a word, operative procedure alone was not responsible for mental improvement or recovery."

Cheney and Kopeloff also obtained similar results. The cases studied included chiefly those having focal infections of the teeth and tonsils.

At about this same time Hunter, the principal English exponent of the focal infection theory of dementia præcox, was being felicitated for his work; by other prominent English physicians, in various articles. The importance of his work was compared with that of Lord Lister. Hunter states, "Each mental hospital should, therefore, be as fully and as well equipped for surgical work as it has hitherto been for medical or nursing care."

Berkeley Moynihan, the dean of English surgeons and a very conservative writer, stated at this time, "The experiences to which I have referred accumulated slowly and the general effect was to make me less reluctant to consider surgical treatment for obvious organic disease in those suffering from grave forms of mental disorder."

Cotton in his monograph, "The Defective, Delinquent and Insane," lists such dramatic cures by both ordinary and drastic surgery that his methods and results have not been duplicated by any other clinic.

The Association for the Research of Nervous and Mental Disease in its monograph, "Schizophrenia," states as follows: "Drastic treatment by surgical interference has not been lacking and pro-

cedures ranging in seriousness from the removal of non-vital teeth to the rigorous excision of several feet of colon have been performed. We can say two things; first, that sound medical and surgical treatment is often a valuable adjuvant to whatever other measures are employed for the benefit of these patients; and second, that drastic surgery seldom benefits the mental condition and not infrequently causes an early termination of the patient's life."

Bainbridge, writing on the inter-relationship of psychiatry and surgery, states, "Surgical removal of abnormal physical conditions frequently will relieve mental phenomenon in part, or sometimes even completely." He later stresses the importance of the part that the mind may play in the treatment of general medical and surgical conditions, and the necessity of psychiatric aid in many apparently physical conditions.

A review of all the cases operated upon in the Brooklyn State Hospital from July, 1930, to July, 1933, suffering from "constitutional psychiatric disorders" was made in order to evaluate the effect of the removal or correction of surgical conditions on the mental attitude of these patients, the shortest period of observation of any case being nine months.

A total of 165 cases came under this prescribed classification. Eight cases were discarded because they were receiving other specific intensive therapy, as x-ray, antiluetic treatment, or had been transferred to other hospitals or deported. This left 157 cases. There are 42 minor operations included, 38 being tonsillectomies, and 4 hemorrhoidectomies, the remainder being major operations, the largest percentage of any group being for gynecological conditions. Minor operations other than those mentioned have not been considered in this paper.

An interesting observation to be made is that no thyroidectomies or therapeutic abortions have been performed at this hospital during the past five years. A large part of the literature pertains to these two conditions.

The group of cases studied does not include all of the more common surgical ailments for which operative correction can be given. The question is not a theoretical consideration of what might be accomplished, but rather what were the most common conditions

found and what was the result of operative correction both physically and mentally, and should more or less operative work be done.

As operations involve infliction of wounds, the possibility of death and its causes have to be considered. Certain of these causes are more or less avoidable, such as shock, hemorrhage, induced sepsis, pneumonia and acidosis. Other causes usually seem unavoidable, such as myocarditis, embolism, or conditions present, curable only by removal of the original foci. All measures may be skillfully and judiciously executed, but no operation is devoid of risk. Calamitous deaths frequently occur when least expected. Conscientious surgeons can never, therefore, blithely assure the relatives or friends that any operation is entirely devoid of risk.

The following table represents a group of cases having had an average hospital residence of six months prior to operation. The results tabulated are those found nine months following operation.

RESULTS OF TREATMENT, FEMALE CASES, BROOKLYN STATE HOSPITAL

Diagnosis	Somatic cured	Psychic recovered	Improved		Unimproved		Total
			Somatic	Psychic	Somatic	Psychic	
Manic-depressive							
Manic type	6	4	0	1	1	2	7
Depressed type	3	2	1	2	1	1	5
Mixed type	12	5	1	6	1	3	14
Stuporous type	1	1	0	0	0	0	1
Involution							
melancholia	0	0	0	0	1	1	1
Dementia præcox							
Paranoid type	8	1	1	8	1	1	10
Catatonic type	8	4	1	2	0	3	9
Hebephrenic type	2	0	1	2	0	1	3
Psychopathic personality	2	1	0	1	0	0	2
Mental deficiency	3	1	0	1	0	1	3
Epileptic psychosis	2	0	1	2	0	1	3
	47	19	6	25	5	14	58

Total cases—58.

Deceased, 4; 1 death (status epilepticus) occurred two years following operation. Two deaths were due to general peritonitis which had occurred prior to operation.

There were 21 tonsillectomies and 1 hemorrhoidectomy in the group.

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Thirty cases were paroled; 25 of these cases have been discharged as recovered or improved; 3 of the cases are still on parole; only 2 cases have been returned from parole.

One case of this series was mentally worse following the operation. Diagnosis—Manic-depressive, mixed type, age 33 years, died six weeks later of acute exhaustion from intense excitement following an operation for umbilical hernia.

Major post-operative complications were 2 cases of post-operative pneumonia, and 3 primary wound infections.

The following table represents the results one month following the operation, in a group of cases where average hospital residence prior to operation was three years. Sixty-four per cent are listed as recovered or improved. Nine months following the operations, this group had decreased to 38 per cent. Surgical anaesthesia seems to be a big contributory factor, because the other therapeutic procedures of the hospital were varied but little during this time.

RESULTS OF TREATMENT OF FEMALE CASES, CREEDMOOR DIVISION, BROOKLYN STATE HOSPITAL

Diagnosis	Somatic cured	Psychic recovered	Improved		Unimproved		Total
			Somatic	Psychic	Somatic	Psychic	
Manic-depressive							
Manic type	7	4	0	2	1	2	8
Depressed type	3	1	1	2	0	1	4
Mixed type	5	1	0	2	0	2	5
Stuporous	1	1	0	0	0	0	1
Involution							
melancholia	0	0	0	0	1	1	1
Dementia præcox							
Paranoid type	9	1	1	9	4	4	14
Catatonic type	3	1	0	1	0	1	3
Hebephrenic type	7	0	3	4	0	6	10
Psychopathic personality	1	1	1	0	0	1	2
Mental deficiency	2	1	1	0	0	2	3
Epileptic psychosis	1	0	0	1	0	0	1
	39	11	7	21	6	20	52

Total cases—52.

Deceased, 3; 2 of the deaths occurred six weeks following operation. The death in one case was due to peritonitis which had occurred prior to operation; and in another case which died suddenly six weeks following operation; a cystic formation of the choroid plexus was found at the autopsy.

No post-operative pneumonias. Two primary wound infections. The patient in each case tore the dressings loose.

Eight cases were paroled; 3 discharged as improved or recovered; 3 are still on parole, and 2 have been returned to the hospital.

RESULTS OF TREATMENT OF COMBINED MALE CASES, BROOKLYN AND CREEDMOOR
DIVISION, 9 MONTHS AFTER OPERATION

Diagnosis	Somatic cured	Psychic recovered	Improved		Unimproved		Total
			Somatic	Psychic	Somatic	Psychic	
Manic-depressive							
Manic type	3	2	2	2	2	3	7
Depressed type	2	0	0	2	1	1	3
Mixed type	4	0	0	3	2	3	6
Dementia præcox							
Paranoid type	12	0	1	10	1	4	14
Catatonic type	5	0	1	4	1	3	7
Hebephrenic type	1	0	0	1	0	0	1
Mental deficiency	2	0	1	0	1	4	4
Epileptic psychosis	4	1	0	0	1	4	5
	33	3	5	22	9	22	47

Total cases—47.

Seven deceased; 7 cases were paroled, 6 from Brooklyn, 1 from Creedmoor. Two cases have been returned from parole.

There were 8 tonsillectomies and 2 hemorrhoidectomies.

The cases in this series were done principally for the conditions not allied to focal infections or the endocrine system. More cases were emergency in this group, than in the previous two.

An analysis of the post-operative complications shows No. 2 series to be particularly low. Especially is this true of post-operative pneumonia and wound infections. In the 52 cases reported on at the Creedmoor Division, no post-operative pneumonia occurred and but two primary wound infections. In both these cases the patients tore the dressings loose. A brief resumé of the methods as carried out recently would perhaps be of interest. As far as possible, each patient is given a complete medical workup with laboratory, including blood chemistry and phenol sulphophthalein test where indicated. Special attention is given to the forcing of fluids and a liberal intake of carbohydrates. Patients who are disturbed receive sodium amytal gr. 3, the previous evening, then grs.

6, two to three hours prior to operation, depending on how rapidly the patient goes to sleep on test dose of the previous evening.

If a local anesthesia is to be used, the patient is given morphine sulphate gr. $\frac{1}{4}$, and hyoscin hydrobromide gr. $\frac{1}{100}$ one-half hour before operation.

When a general anesthesia is to be used, the patient is given morphine sulphate gr. $\frac{1}{6}$, and atropine sulphate, grs. $\frac{1}{150}$ one-half hour before operation. Following the operation, the patient is placed in an ether jacket and fluids with carbohydrates is forced by vein, subcutaneously, or by mouth. The nurse is instructed to turn the patient every two hours.

Patients having had major operations are given carbon-dioxide-oxygen mixture for several minutes twice a day to insure deep expansion of the lungs. In this way it is believed that the tendency to hypostatic congestion is lessened.

Practically all of the minor surgery, such as cauterization of the cervix, incision and drainage, reductions of fractures, and painful dressings, is done under sodium amytal treatment with or without a local anesthesia. Patients may apparently experience the sensation of pain during the procedure but the memory for the sensation of the pain is lost. This is of great importance especially when treatments have to be repeated. Fear of treatments is eliminated while the following day the patient has forgotten any unpleasant sensation he may have had at the time. A physician has a much greater chance of gaining the confidence of his patients and he may even gain a positive transference from a patient who would otherwise develop a hate reaction.

With some patients who have shown deep regression; following an operation, there has been marked mental improvement. They have become compliant with ward routine and clean in habits.

Case 1, C. H., female, age 51 years, single; finished high school. At 25 years of age, patient began keeping company with a young man to whom her mother objected; she resented the mother's interference and gradually developed a change in her temperament, became irritable, showed lessening efficiency in her work, and a tendency to impulsive outbreaks. Admitted to the Brooklyn State Hospital 29 years ago at 28 years of age. It was found that she was suffering from menorrhagia; and a large abdominal tumor was noted but not then operated. The patient showed gradual and progressive regression, becoming untidy in habits and in person. Because of her marked indifference, there was apparent orientation and memory defects. In December, 1932, she was transferred to

the acute medical and surgical division of the hospital because of pain in the right lumbar region. Her speech was irrelevant and incoherent. She had wet and soiled for the past ten years. Physical examination disclosed a tumor mass filling the whole pelvis and extending about 6 cm. above umbilicus; there was a large post-operative hernia from an old appendectomy incision. Because of acute tenderness in the right lumbar region, a pressure obstruction of the right ureter was suspected, and the patient was cystoscoped on December 6, 1932; a No. 5 catheter passed readily into the left kidney pelvis while a No. 4 catheter met with obstruction 10 cms. above the ureteral meatus on the right side. One day later patient was again cystoscoped; this time a No. 4 catheter was passed into the renal pelvis on the right side and a right hydronephrosis was found. Drainage was instituted until January 5, 1933, at which time a supravaginal hysterectomy and a right oophorectomy was done. Both ovaries appeared normal, except for menopausal atrophy and compression. The laboratory reported a fibroma. The wound healed perprimam and the patient was relieved of the pains in the right lumbar region. Following the operation the patient gave relevant replies to all questions asked pertaining to her residence in the hospital. Her mental condition seemed to be greatly improved; during and following convalescence she became interested in occupational therapy which she had never shown before. Her mental improvement was so pronounced to her sister, that her parole was requested. In September, 1933, eight months after the operation, it was noted that she was becoming more simple and superficial in her statements, began to complain of pains in the old post-appendectomy incisional hernia. Operated on October 16, 1933, for repair of the old ventral hernia. Fascial transplant type of operation was necessary. The intestines were enclosed in a mass of adhesions but the hernia was closed successfully and the wound healed perprimam. Patient again became improved mentally, expressed the desire to be up and asked about the nature of the operation. On cystoscopic examination one month later, the right ureter readily admitted a No. 6 catheter which indicated a normal condition. In February, 1934, the patient is again showing a loss of interest in her surroundings. Emotionally is superficial and childish, but compliant to ward routine, does a little occupational therapy, and has not wet or soiled since the time of the first operation over one year ago. She is entirely free from her somatic complaints.

An interesting observation to be made in this case is that following each operation, the patient made a rather pronounced mental improvement and for over a year now has not wet or soiled. This is a psychosis of 19 years' duration. Whether an operation at the time the symptoms were first noted in 1917 would have relieved the mental condition is problematic.

Case 2, F. R., female, age 38 years, married. Admitted to the Brooklyn State Hospital, February 11, 1932. Early life uneventful. Married at 17 years of age after two years of courtship; married life was congenial; five children resulted from this union; one of whom was killed at the age of four years in an accident 12 years prior to patient's admission. The patient grieved over this a good deal but there was no abnormal mental reaction. About 18 months prior to admission a sister died of a tumor of unknown type. One year later the father died. Patient became quite depressed at this time, cried a good deal, but would not say why she was unhappy. Developed the idea of

infidelity against her husband and was afraid to stay in the house. Talked peculiarly of religious subjects, accused her daughter and sister of trying to poison her, sought advice of a physician and in February, 1932, became infatuated with him, giving the following statement, "I don't remember what happened. I think I had sexual intercourse with him. I am not sure about it. Only felt like that. I thought I did something wrong. I am afraid of poisoning." Had ideas that machines were devised to work against her. Became afraid that somebody had seduced her daughter. Again attended the physician's office, this time she was happy, elated, singing and dancing. On the physician's advice patient was brought to the hospital she having been in a comatose state for 24 hours prior to admission. Prior to this, patient had made a suicidal attempt by gas and tried to jump out of the window.

Physical examination showed pyorrhea and tonsils moderately enlarged. Blood Wassermann negative. She remained in a stuporous state, held herself rigidly, kept her eyes closed and required tube feeding during the entire time. For four months her relatives were allowed to visit her daily but patient remained in a stuporous condition and required tube feeding. Therapy was not beneficial.

On June 1, patient was noted to have the expression of pain. Physical examination disclosed acute tenderness about four cms. above McBurney's point but no rigidity could be made out. Laboratory examinations showed a slight elevation in the white count. Following a surgical consultation the diagnosis of sub-acute retrocecal appendix was made and patient was operated on June 1, 1932. On opening the abdomen, a large foreign body was palpated partly in the stomach and in the duodenum. A closer examination revealed that a handle of a spoon had gone through the pyloric sphincter while the bowl of the spoon was too large to pass and the pyloric sphincter was constricted below it. The spoon was removed by gastrotomy. An injected retro-cecal appendix was also found and removed. Subsequent laboratory examination showed that the appendix had been the site of chronic inflammation.

During the period of reaction from the anesthetic, active suggestion was used. Patient was assured that the operation was a success and she would now be all right. Patient conversed freely following the operation. Did not remember anything that had happened from the time she was told in her own home that she would have to go to the hospital until the time she was spoken to by her family just prior to the operation. Remembered with regret all incidents prior to going to the hospital. Post-operative convalescence was uneventful except for some accumulation of serum at the upper end of the wound which cleared up promptly by the institution of proper drainage. The patient took all food spontaneously and her reactions were apparently of a normal nature. When told to move her arms and legs about, she stated that she felt too weak. Strychnine sulphate was used, with a suggestion again, that this drug would improve her strength. Her further convalescence was uneventful, and she was up in a wheel chair on the twelfth day, post-operative, and walked about with assistance shortly following this. Prior to operation her diagnosis was uncertain and a dementia præcox, catatonic type was considered. When the patient began to show improvement, she was classified as manic-depressive, stupor. She was paroled July 27, 1932, five months after admission, condition improved. Adjusted well to the home conditions; stated that she did not care to mingle freely with people of the neighborhood as they were cognizant of the fact that she had had a mental disturbance. This attitude subsequently changed on reassurance. She was discharged as recovered July 27, 1933.

Active suggestions and surgical interference were undoubtedly important factors which caused her recovery. The improvement in the patient, however, began following the operation and suggestion was carried on until she made a good adjustment outside of the hospital.

The following case illustrates that a general infection or focus of infection, may be a precipitating factor in the development of a psychosis. Especially is this so, if the patient has been burdened by previous unhappy situations in the environment.

This case also shows that there may be a delicate balance between the normal and psychic mental state. Following an operation the patient was able to adjust to an unhappy ambivalent marital situation.

Case 3, R. W., female, age 46 years. Admitted to the Brooklyn State Hospital, July 1, 1931. Diagnosis, manic-depressive psychosis, depressed type. Her early life was of the average peasant type. Immigrated from Lithuania in 1885 and worked as a domestic until 45 years of age when she married an unemployed widower, eight years her minor. The day following marriage she was found by a friend wringing her hands and in a very distressed state of mind. Patient stated: "I did not want to be married. How can I get away from that man?" Following this she partially adjusted to married life. In October, 1930, became ill and stuporous. Following this she was apathetic, mute, at times depressed and agitated. At the time of admission to Brooklyn State Hospital, July 1, 1931, physical examination was essentially negative. Mentally she was mute, inaccessible and apparently depressed. On May 7, 1932, 10 months after admission she developed signs and symptoms of an acute otitis media on the left side. X-ray of the mastoid disclosed a chronic condition. Mastoidectomy was done May 20, 1932. The bone was found to be very sclerotic and contained free pus, indicating an acute exacerbation of a chronic process. Convalescence was uneventful and during this time she answered questions spontaneously and relevantly, was pleasant in her behavior and exhibited no signs of stupor.

In June, 1932, she began to respond to questions in an inaudible whisper. Again assumed a blank, mask-like facies, and apparently became disinterested in her surroundings. Physical examination disclosed a blockage of the drainage. Proper treatment was instituted and the patient again assumed an apparently normal reaction. Paroled for a period of one year on August 7, 1932, three months after operation, as improved. In January, 1933, she developed a severe la grippe and was returned to the hospital with stupor symptoms as noted prior to operation. These symptoms promptly cleared up after the infection subsided. Patient was again paroled on February 1, 1933, for a period of one year and discharged as recovered.

In the preceding case it would appear that the organic factor so weakened the ego that unfavorable circumstances, and unhappy marital situation could not longer be handled, and she sought refuge

in a psychosis. The clearing up of the focus of infection and general improvement of her physical condition seemed to be an important factor in promoting recovery.

The following chart indicates the disposition of the cases paroled; also their mental diagnosis.

Dianosis	Total paroled	Discharged as				Still on parole	Returned from parole
		Recovered	Greatly improved	Improved	Unimproved		
Manic-depressive							
Manic type	9	5	1			2	1
Depressed type	3	1	1		1		
Mixed type	9	4	1			1	3
Stupor	1	1					
Dementia præcox							
Paranoid type	6		3	1		1	1
Catatonic type	9	3	2	1	2	1	
Hebephrenic type	2		1	1			
Psychopathic personality	3	1	1				1
Mental deficiency	1	1					
Epileptic psychosis	2	1				1	
Totals	45	17	10	3	3	6	6

The results show that the paroled cases were about equally distributed between the benign and the malignant groups.

SUMMARY

A review was made of all the cases operated on at the Brooklyn State Hospital from July, 1930 to July, 1933, suffering from "constitutional psychiatric disorders." Eight cases were discarded because they had received other specific intensive therapy or had been removed to other hospitals; leaving 157 cases to be considered. Thirty-eight were tonsillectomies, 4 hemorrhoidectomies, 115 major operations and these mostly because of infection; or disease involving glands of internal secretion. The average age at operation was 38 years. There were 110 females having had one or more operation; 7 deaths resulted. Forty-seven of the cases were males, with

7 resultant deaths, giving an average death rate of 8 per cent for the entire series.

The somatic results were uniformly good while the concomitant psychic results showed that 45 cases were paroled, 30 of which were discharged as recovered or improved. Six cases are still on parole. Further classification of the results is difficult to make, but a large percentage of the remaining cases have been mentally improved.

There is a great variability in the effective therapeutic approach for a mental case. The diversibility of the etiological or contributory factors perhaps accounts for this. A break in the established routine life of a patient may be harmful to some, while with another patient some severe shock or interruption of the daily procedure may have a very beneficial result.

Composite efforts should be stressed rather than to expect one role of procedure to cure the patient. An effort should be made early in the psychosis to remove the foci of infection, and in the female; pathological gynecological conditions.

The correction of conditions such as hernia, orthopedic deformities, etc., having no endocrine or focal infection basis produced little or no change in the mental condition of the patient, but this group was relatively small. Mental symptoms were aggravated in only one case of the entire series.

While the cure of the patient per se may not be effected mentally, an enormous benefit is done the patient as well as the institution by the correction of physical defects, removal of foci of infection, and other factors that contribute to physical ill health. The patient who may require care of a nurse or an attendant may in turn, following such corrections, be able to care for himself and frequently assumes the role of a ward worker.

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BOOK REVIEWS

Death Rates by Occupation. Edited by JESSAMINE S. WHITNEY. Published by the National Tuberculosis Association, New York City. 1934.

Public health activities are tending to become more specific in their approach. Instead of general campaigns, such as the purification of the water supply, or better housing, the modern attitude stresses the study of specific causes of disease, among specific groups of the population. This has given rise to the important study of the relation of occupation to disease and mortality. In some cases, such as silicosis, the causal relation of occupation to the disease is well established. In many others the relation, if not as intimate as the preceding, is sufficiently close to justify a study of health hazards in industry. The rapid development of compensation legislation furnished a practical necessity for such an analysis.

The monograph under review is based upon a study of death rates among employed males in 10 states in the United States in 1930. The population thus sampled included 38 per cent of the total population of the country. The study was further limited to males aged 15 to 64 years. Those occupations were selected for more detailed analysis, in which the deaths totaled at least 500 during the year. Death rates were furnished for 17 specific causes of death.

The occupations were grouped into 7 broad classes, which seem to correspond fairly closely with socio-economic gradations. Of particular interest is Table 8 of the monograph which gives death rates, standardized by age, for the more important causes of death in each of the occupational groupings. The evidence is quite conclusive of the fact that with a rise in the economic scale, the death rates decline accordingly. The unskilled and semi-skilled workers have the highest death rates, the only exception occurring in connection with diabetes mellitus.

The present study does not enter into a detailed discussion, but sufficient data are presented to enable interested students to pursue the analysis. This is specially true of Table 7, which provides death rates in 62 occupations according to broad age groups and specific causes of death.

The monograph contributes new and important data to our knowledge of differential aspects of mortality and will undoubtedly prove a useful reference book.

MALZBERG.

Introduction to Physiological Psychology. By GRAYDON LAVERNE FREEMAN, Ph. D. 579 pages. Price \$4.50. Ronald Press Company, New York.

This volume, as the author himself describes it, is a textbook of physiological psychology, which he defines as a study of the "relationship between integrated behavior and the bodily processes of the intact organism." This necessitates a study of the relationship between the structure and function of the central nervous system, which the author proceeds to do in an orderly and systematic manner. After a brief review of the anatomy of the various structures which make up the central nervous system, he has brought together under each, the various theories promulgated by rival experimental physiologists regarding their function, and shows how the proper functioning of the nervous system produces what is called "integrated behavior."

The work is divided into four main parts, as follows:

Part 1. Basic Neural Mechanisms in Behavior. This includes such mechanisms as the neurone, receptors, effectors and adjustors.

Part 2. The Structure-Functional Organization of Neural Mechanisms. This describes the part played by the various divisions of the nervous system in the stream of behavior.

Part 3. The Integrative Action of Neural Mechanisms. Describes the various neural mechanisms working together as a unit and producing integrated behavior.

Part 4. Neural Mechanisms and Variable Behavior. This is the most interesting and stimulating section of the book and, to quote the author—"Up to this point we shall have more or less assumed that the organism responds in an invariable manner to a given pattern of external and internal stimuli. This assumption finds little support in actual fact. The behavior of the organism, particularly in its more complex forms, is adaptive; that is to say, it has the characteristics of intelligently directed choice."

Finally, the author shows quite conclusively that in the evolution of man, there has been a subordination of the stereotyped reaction, and the development of individually acquired responses, resulting in consciously-controlled behavior.

With this conclusion the field of physiological psychology ends and that of so-called speculative psychology begins.

This volume can be heartily recommended as a textbook to the student of psychology, who as a ground work, must necessarily have a knowledge of the anatomy and physiology of the nervous system.

At the end of each chapter are selected references which should be of value to the student wishing to pursue a more detailed study of the subject.

E. H. MUDGE.

Le Suicide. By DR. CHARLES BLONDELL. 132 pages. Librairie Universitaire d'Alsace. Strasbourg. 1933.

This book is not a factual study of suicide. It is rather an attempt at interpretation, and is primarily a polemic against certain sociological concepts. It is an effort on the part of a French psychiatrist to strengthen the psychiatric point of view with respect to the causes of suicide. The author takes sharp issue with the distinguished sociologist, Emile Durkheim. In his great work on suicide Durkheim rejected all attempts at individual analysis, and sought for explanations of suicide in variations of social forms and social concomitants. The sociologist takes for granted the constancy of the frequency of unstable individuals in a given society, and seeks for causes of subsequent changes in suicide rates in terms of social changes.

Without denying the force of the sociologist's arguments, Dr. Blondel insists, nevertheless, that the proper approach to a study of suicide must be psychological (i. e., psychiatric), and that the motivating forces are individual. "All that one may say in favor of the theory of the social causation of suicide is that among many psychopaths these causes are like the last drop of water, which causes a vase to overflow. But, in order that the vase may overflow, it must first be full—filled with that predisposition towards an impulsive anxiety, without which there is no suicide. A society without insane or psychopaths, even in its worst moments, would be practically without knowledge of voluntary death." (53) And again "The question is, precisely, to know whether suicide should not be included with those human acts in connection with which the social group, at most, merely prepares the paths along which only the individual's physiological peculiarities can impel him." (121).

Suicide therefore is one of the class of problems in which two points of view seem to be ever in conflict—the individual (psychological) and the sociological. And there undoubtedly appears to be an effort on the part of many writers to explain suicide either in one or the other set of terms. But the question arises whether the two are not really complementary. Dr. Blondel approaches this point of view, though he makes the psychiatric view fundamental, and accords to the social environment the rôle of ancillary factor. "A vicious system of public hygiene, which is a social matter, may provoke an epidemic of typhoid fever; an improvement in hygienic conditions may check it; one may dream of improvements in conditions of life which may practically suppress typhoid fever. But typhoid fever, in itself, is an infectious disease which has absolutely nothing of a social character. It would not exist if there were no typhoid bacillus, and all collective representatives, customs, institutions, and social organizations cannot

cause a single pathogenic bacillus to appear in a culture or in an intestine which had not previously been infected." (4-5). A sociological investigation may complete one of a psychopathological nature, but as far as suicide is concerned, it cannot replace it.

Such is the thesis of the author which he exposes in a rigorous manner. His analysis deserves close consideration, and will undoubtedly influence subsequent investigations of causative factors in suicide.

MAILZBERG.

Russia, Youth and the Present-Day World. By FRANKWOOD E. WILLIAMS, M. D. 270 pages. Farrar & Rinehart, Inc., New York.

It has been said that thinking is not an unmixed good. In this book, Dr. Williams has given us his thinking on certain aspects and developments in Russia and their influence on the mental health of the Russians.

The author has made several visits to Russia and has made every effort to give an objective evaluation of that country as it is now. It should be said that this is indeed a most approving and appreciative evaluation. He then gives us his thinking in terms of the future development of the individual in Russia. It seems that it is here that the book becomes unduly optimistic and Utopian. To the author it seems that the Russian youth is so prepared by his education and life's experience that few difficulties will confront his adult adjustment. Furthermore the customs of Russia are such that the individual will find little difficulty in conforming to them, in fact it seems difficult for him to do otherwise. In contrast Dr. Williams gives us the pathetic picture of the American adolescent, all but overwhelmed with feelings of guilt, inhibited by various other conflicts and totally unprepared by his education and life's experiences to meet adult life with its responsibilities and somewhat archaic mores.

One wonders if the author has not made the picture of the American youth too lugubrious and if his thinking regarding some of our customs, philosophies and religious values is not colored by his long experience with those who have found them difficult.

Regardless of whether or not one agrees with Dr. Williams' ideas one will find his descriptions of life in Russia both entertaining and enlightening and those interested in mental hygiene will find of value the preventive work done by the Russians and their philosophy about it.

The book consists chiefly of papers given at different times and before different audiences, but what it lacks in coherence is more than compensated for by the sincerity of the author and his excellent style in writing.

HESTER B. CRUTCHER.

Mental Hygiene of the School Child. By PERCIVAL M. SYMONDS, Ph. D. Teachers College, Columbia University. 20 chapters, 301 pages. Macmillan Co., New York, 1934.

At the end of each chapter there are problems and exercises for discussion, as this book is essentially intended to be a textbook for teachers. The author seems to feel that the point of view of the psychiatrist and the educator is different, as in chapter two he states, "Most of the mental hygienists of today have been physicians or psychiatrists and their point of view is traditionally that of the medical man who is more used to diagnosing ills and disabilities and suggesting forms of treatment than he is to planning positive and prophylactic measures. The point of view of people who are interested in mental hygiene in schools should be that of learning to recognize the symptoms of mental *good* health." The above statement is rather surprising in view of the active preventative work being carried on at the present time by psychiatrists in this and other states.

The author discusses behavior patterns, positive habits of mental hygiene, sex adjustment, school programs, and remedial work in the school. The last chapter is devoted to case histories of pupils in the junior and senior high schools. There is a bibliography of standard works on mental health and child guidance.

While the book is inclined to be dogmatic, the author has summarized in a concise and readable manner, the accepted principles of child guidance from an academic point of view.

JAMES L. TOWER.

Investigations Into the Causes of Mental Deficiency. By H. O. WILDESKOV, M. D., Medical Superintendent of the Keller Institution for Mental Defectives, Brejning, Denmark. 106 pages. Humphrey Milford, Oxford University Press, London.

The author feels that although there have been many investigations which have aimed to clear up the causation of mental deficiency, the views of investigators are still conflicting. He is impressed by the difference in the etiology of the mild and the severe forms. He has selected case material from his own institution, and in order to obtain the greatest possible uniformity, has done the work without collaborators. Summing up his findings, he states, "There is ascertained a great difference in the results obtained with the two materials of mental defectives, respectively mild and severe cases. As far as practicable, some available reports on collective materials have been worked over with a view to the degree of mental deficiency,

and in this way it has been possible in part to balance the difference between the divergent findings. Future works on mental deficiency ought to be based on material that is *uniform* as to the degree of mental deficiency."

He discusses hereditary and acquired factors and gives his own statistics and those of other investigators who have worked on the problem. These statistics are apt to be a little confusing to the average American reader, as he adopts the German classification as lending itself more easily to scientific purposes. "It includes all grades of mental defect under the term oligophrenia, and the oligophrenies are divided after the I. Q. as follows: idiots, I. Q. 0—35; imbeciles, with I. Q. 35—75; dullards, with I. Q. 75—85; and simple minded, with I. Q. 85—90."

Although the amount of case material is small, the writer has approached the problem in a scientific spirit which should stimulate further investigation, both in this country and abroad.

JAMES L. TOWER.

Mental Hygiene and the Public Health Nurse. By V. MAY MACDONALD, R. N. 2nd Ed. 88 pages. Cloth \$1.00. J. B. Lippincott Company.

This is a second edition of a book which fills a need, its sub-title, *Practical Suggestions for the Nurse of Today*, is descriptive of its contents. The writer has confined her material to fundamentals and so is enabled to cover the phases of preventive work and the community problems connected with the psychoses, mental deficiency, child guidance and maladjustment. One is struck by the optimistic tone of the book and the stress upon preventive work. It is squarely presented to the nurse that just as surely as she would not shrink from approaching a reported case of communicable disease, just so courageously must she approach a case of mental maladjustment and call upon all helpful community resources in its behalf.

Miss MacDonald outlines the attitudes which a nurse should have toward mental disease and deficiency and throughout the book demonstrates her own excellent attitude. The section which deals with the symptoms which should arouse suspicion of possible mental disease is particularly precise and helpful. The responsibility of finding the incipient cases and of educating others in noting danger signals is laid upon the public health nurse. Early detection of incipient maladjustments should favorably modify their course. Procedures in securing examinations and treatment are outlined.

One section deals with the mental health of children and gives the outstanding points in habit training and life attitudes which are accepted as fundamental to well-adjusted lives. In her rôle as family advisor the public health nurse is in a position to pass this on to the mothers. Nervousness

and the preventable forms of mental disease are discussed briefly. The newer attitude toward the mental defective which recognizes him as a personality with need for satisfaction and success, and the responsibility of the community toward him embodies the best present opinion.

All of this is incorporated in a compact book of 88 pages, easily usable, with clear topic headings and good lists of recommended reading. It should be useful to the public health nurse, the teacher, the social worker and all of those who come into contact with family life and problems.

MARION COLLINS.

The Institute for Child Guidance, 1927-1933. By LAWSON G. LOWREY, M. D., and GEDDES SMITH. 116 pages. The Commonwealth Fund, New York, 1933.

In this volume the authors present a comprehensive review of the aims and activities of the Institute for Child Guidance from its inception in 1927 to its close in 1933. An organization competent to provide both adequate clinical service and facilities for training child guidance workers was created. In order to facilitate the training program each applicant for guidance was carefully considered, the aim being to accept cases that could be helped and that would furnish good training material. In treatment, the need for cooperation between psychiatrist, psychologist, and social worker was especially stressed. During the period covered there was a transition in the child guidance movement and in social work generally. The tendency was away from a more strictly intellectual, routine, preoccupation with the child as an isolated individual to a more flexible, feeling concern for the whole family pattern with the child as a part. Suggestions and criticism regarding the entire program were invited particularly from former students engaged in child guidance work. As a result of these the curriculum was changed and modified from time to time to make it more practical and adaptable. The research work was centered on treatment, with minor studies of special examination procedures and supervisory techniques.

During its six years the Institute gave training to 336 persons, not all of whom went into child guidance work. However, the training offered was of such broad scope that almost all felt greatly benefited by it. During the period 2,641 children were given treatment. The status of the treatment cases at their closing showed 23 per cent satisfactorily adjusted, 53 per cent partially adjusted and 24 per cent unimproved. When one considers the potential benefits of good child guidance work the Institute's enforced closing appears as a distinct loss to the mental hygiene program, not merely to the local community but to the country as a whole.

DONALD CARMICHAEL.

Children of the New Day. By KATHERINE GLOVER and EVELYN DEWEY. 432 pages. \$2.25. D. Appleton-Century Company. 1934.

The material for this book is based upon the findings of the White House Conference on Child Health and Protection and its purpose is to present some of the trends and to interpret some of the thoughts and facts brought together by the conference committees. The material of the book is not new but the interpretations are new and forward-looking and the tone is hopeful and inspirational. It indicates the mass of new knowledge and techniques which can be made to serve the needs of childhood. The chapters on growth and nutrition follow the usual lines. The chapters on emotional development and on habits in the making are excellent.

The community in which the child of today finds himself is contrasted with the conditions of a generation ago and the possibilities for the future are outlined. The authors discuss the change in the present focus of education from the subject taught to the individual taught with the aim of a stronger interaction between education and life. This change is in keeping with our change in civilization which has passed the frontier stage to one of national maturity and may finally reach its goal of a democratic culture. The chapters devoted to the handicapped and to the social rebels should serve to bring their needs to the attention of interested persons not professionally dealing with them.

The final chapter on "Children of Tomorrow" visions a powerful spiritual motivation in our children. "Perhaps the only real gift we can pass on to the children today is an awareness." To attempt to define the paths for the new day would only be to commit the crimes of standardizing and formalizing. There are children among us now who are the builders of the new day. The book should appeal to thoughtful persons who are in search for an interpretation of the current changes as they affect childhood; to parents to take their parenthood seriously and to study groups interested in child study and child welfare.

MARION COLLINS.

Fact, The Romance of Mind. By HENRY OSBORN TAYLOR. 166 pp. \$1.20. Macmillan Co., New York.

This scholarly book contains the author's conclusions of how man has tended to use his mind in the understanding of important facts of life in various phases of his history.

To primitive people an assumed knowledge of important facts is chiefly arrived at through intuition, imagination and emotion rather than reason-

ing. This mental characteristic is seen in primitive man's belief in magic, fears of the supernatural, etc.

Man's attempt to discover truth almost solely through religion is a more mature tendency of the mind, although here, as well as in the mental life of primitive man, imagination and emotion play a dominant rôle. However, the author does not imply that religious concepts are without truth. Religion appears to be an indispensable need in the lives of some persons and the social concepts advanced by many religions and the teachings of Christ in particular express man's highest social aspiration up to the present time.

Expression through the arts, "including poetry and the plastic and pictorial arts" is another mode of finding truth for many persons. Some persons succeed in expressing the facts of life as they see them through this medium almost exclusively. While this expression again depends on imagination and emotion, no one can say that it is without truth. In fact, the noblest truths may be expressed in this way.

Again, through the material contacts of every-day life other persons may find their closest contact with fact or what they regard to be fact. To many persons this may be the chief approach to truth as they know it.

Through science and philosophy, in which the reasoning powers of the mind are used to gain a knowledge of facts and in which critical judgment is exercised and emotions and imagination are curbed is probably to be found the closest approach to truth and to fact in the author's opinion. But scientific reasoning in itself, without imagination and without certain checks of common sense, very often is not an entirely safe guide.

The author points out these various avenues of expression by which man may live according to his taste, temperament, training and background and feel that he is at least approaching truth. No one trend of thought is complete and perfect to the exclusion of others. All have elements of use.

The arguments raised in this book might be put to important practical use if one could detach himself sufficiently from traditional concepts of life to analyze his own tendencies and attempt to determine whereby his fundamental tendencies may best find expression.

The author in his other works has written extensively on certain phases of the mental evolution of man. The "Medieval Mind" which appeared several years ago, is a veritable mine of information on certain phases of religious thought of the middle ages. The present volume is an interesting and stimulating discourse on certain phases of thought which are either current at the present time or have been in man's history.

The Sexual Side of Marriage. By M. J. EXNER, M. D. 249 pages. 4 illustrations. Third Edition. Price \$2.50. W. W. Norton Company, Inc., New York.

At best a mutually happy marriage must be attained largely by a process of trial and error in reaching satisfactory adjustments and if the trials are too onerous and the errors too frequent, disaster may result. The sexual side of marriage, while not all-important, is a fertile field for mutual misunderstandings and maladjustments leading to all sorts of social and mental hygiene problems. Too many of the rules of the game have been promulgated by well-intentioned but misinformed, uninformed or ignorant persons, perhaps unmarried or unhappily married themselves. From this it is refreshing to turn to this effort, the best we have seen, to present in non-technical language the latest modern thought on a subject of great moment in the fields of mental and social hygiene. It is intended only for married persons and those contemplating marriage, but for such it offers frankly, and in good taste, information and advice on the intimate relationships of marriage in particulars where ignorance and misinformation are altogether too prevalent.

The publishers announce that the book will not appear in a popular-priced reprint, indicating failure to recognize the social responsibility of making it available for the masses.

LEWIS M. FARRINGTON.

Children of Pre-School Age: Studies in Socio-Economic Status, Social Adjustment, and Mental Ability, with Illustrated Cases. By ETHEL KAWIN. 340 pages. \$3.50. The University of Chicago Press, Chicago, 1934.

This book appeals most to those concentrating in the pre-school field but is also of interest to physicians, psychologists, social workers, and educators.

The author presents three studies conducted by the pre-school department of the Illinois Institute for Juvenile Research, which were carried out in connection with a service, research, and teaching and training program. The program was carried on in five nursery schools and a clinic service requested by Chicago welfare organizations. Part I describes types of service rendered, methods of approach, and relationship to cooperating agencies, and gives illustrative case summaries. Part II describes and evaluates the following research studies: (1) Young Children of High and Low Socio-Economic Status, a Comparative Study of Their Performance on the Merrill-Palmer Scale. (2) Social Adjustment in Children of Pre-school Age. (3)

Analysis of Stanford-Binet and Merrill-Palmer Test Results for Children of Pre-school Age.

In regard to socio-economic status, the author finds that the significant differences between the test results of a group of pre-school children of low socio-economic status and a similar group of high status are primarily due to the language factor, and that the former group are superior in their performance in certain non-verbal tests. The results support the theory that verbal and performance tests measure different functions, and suggest the possibility that children of low socio-economic background excel in certain types of functions while those of high excel in others. The overlapping of these two groups on the Merrill-Palmer Scale indicates that even though there is a mass tendency for high I. Q.'s to be associated with superior social and economic status, and vice versa, no prediction with regard to these two variables can be made with respect to an individual case.

As to social adjustment the findings are summarized in these words: "Whether a child is socially well adjusted or presents problems of social adjustment, will depend upon a 'constellation' consisting of various factors in his own make-up and his life-situation. Outstanding among these are the intelligence of the child, the occupation of his father, the relationship of the father to the child, and the agreement of the parents in regard to the child's training.

In regard to tests for children of pre-school age, the following conclusions are drawn: (1) Mental age in the Stanford-Binet Scale exceeds consistently chronological age at all pre-school levels. This is borne out by finding of other workers. (2) It is possible that the rate of mental growth is less stable during early childhood than among children of school age. (3) The Merrill-Palmer Scale appears to be better standardized in regard to the adequacy of age norms than the lower age range of the present Stanford-Binet. The author emphasizes the need of further study in regard to the constancy of performance on the Merrill-Palmer Scale to check the findings of this study which shows the reliability coefficient of this test by correlation of retest after a period of months, with first test to be .59. The handicap of selection of cases in this study is stressed in drawing conclusions in regard to the scale in question.

Summaries of the literature in the field and bibliographies accompany the reports of the studies.

While the necessity of meeting the demands of service has somewhat restricted these studies, and prevented more definite findings, they tend to confirm observations of workers in the field. There seems little new. Certain points one might expect to find are not included. For instance, while

the author included among the items in the study on social adaptation the question of financial dependence, one suspects the problem had been sufficiently met by the supervising agencies so that insecurity ceased to be a factor. It is financial insecurity rather than financial dependence which has been most frequently observed in connection with behavior difficulties.

ALICE W. GODDARD.

Sex Habits—A Vital Factor in Well-Being. A. BUSCHKE, M. D., and F. JACOBSON, M. D. Translated from the German by Eden and Cedar Paul. Foreword by Gerard L. Moench, M. D. 224 pages, eleven full-page plates. \$2.50. Emerson Books, Inc., New York.

Notwithstanding the apparent limitations of the title, in reality the first half of the book is a treatise in brief form covering the biological facts of human reproduction, including anatomy, fertilization, embryology and the nature of the reproductive cells. The plates are very fine and would do credit to a scientific textbook. The chapters dealing with sex impulses and habits reflect the continental view of the dual standard for men, whose demands are actively insistent and superior, in contrast to the passive and inferior role of women. A quotation from the discussion of pregnancy and childbirth shows this attitude perfectly: "Anything but extreme brevity would lead us beyond the scope of the present work, and the *married man* who desires detailed knowledge on the matter may be referred to special works on the subject." (Reviewer's italics.) The author's disclaim sympathy with this viewpoint in its entirety, but believe it will change but slowly (in Germany). The chapter on eugenics and racial hygiene is excellent while that on puberty is outstanding; it should be read by every parent and teacher. These are ample justification for a work which, without them, would be just another book on sex education. One could wish that more stress had been placed on the dangers of venereal disease in the fields of social and mental hygiene. There is a chapter on sex abnormalities which should be helpful in view of the general lack of information on the subject and the disposition to treat such cases as examples of moral depravity rather than of psychopathy as we know many of them to be. The concluding chapter on monogamy expresses the conviction of the authors that such a union must be the sexual ideal of the normal human being. They urge abandonment of the dual standard by restriction of males rather than extension of equal privileges to females. They advocate an increased facility of divorce and a measure of birth control, both contraceptive and abortive, under strict legal and scientific restraints, rather than furtively and by illegal methods now obtaining (in Germany).

LEWIS M. FARRINGTON.

Behind the Doctor. By LOGAN CLENDENING. 488 pages. 148 illustrations. Alfred A. Knopf. New York City.

The development of the science of medicine as described by Clendening is a fascinating story. He brings the old medical geniuses to life, causes them to talk to the reader and has them perform again the remarkable feats that gave them a place among the immortals. Here we see Hippocrates, the Greek, discarding magic and endeavoring to aid nature in restoring health; here is Galen, the great clinician, treating the emperor of Rome; here is Vesalius, stealing skeletons and perfecting his anatomy of the human body; here are Harvey and Servetus learning the age-long secret of the circulation of the blood; here is Paré, the great French surgeon, introducing haemostats to control bleeding at surgical operations; here is Sydenham, the accurate observer, teaching differential diagnosis; here are Morgagni, Priestly, Jenner, Howard, Hales, Hunter, Bright, Lister, Semmelweis, Virchow and many other medical scientists preparing the way for the modern practice of medicine.

The book is history, history with scientific understanding, but also with keen appreciation of the reader's interests and limitations. It is not a reference work but a book to be read by the average person with the average interest in the medical arts.

Many rare illustrations adorn the work.

POLLOCK.

Mortality Among Patients with Mental Disease. By BENJAMIN MALZBERG, Ph. D. 234 pages. State Hospitals Press, Utica, N. Y.

This volume presents an analysis of mortality among the patients under treatment in the New York civil State hospitals during the three years ended June 30, 1931. It considers rates of mortality according to sex, age and individual groups of psychoses, and in detail of treatment presents a greater wealth of material than preceding studies of this type. As the mortality rates are of significance only in relation to the norm, they are compared throughout the volume with corresponding death rates in the general population of the State of New York.

The book consists of eight chapters. The introductory chapter summarizes the relevant literature on the subject of mortality among the insane, and considers the effects of some specific conditions such as the economic and social status of the patients and the duration of the disease. A general formula for an institutional death rate is then described, and applied in the succeeding chapters.

Considering all mental patients as a group, it is shown that their death

rate exceeds that of the general population in the ratio of 4.8 to 1. Diseases of the heart constitute the leading cause of death among these patients, followed by pneumonia, general paralysis, pulmonary tuberculosis, diseases of the arteries, and nephritis, in the order named. From cancer and diabetes, however, the general population has higher death rates than the insane. The ratios of the death rates of male patients to those of the general male population are usually in excess of the corresponding ratios among females, indicating that mental disease has a less deleterious physical effect upon the female patients. The death rates vary with age; they decrease to minimum values at 30 to 34 years, and then rise steadily to maximum values at the older ages. A marked exception to this occurs in connection with pulmonary tuberculosis, the death rate from this disease decreasing among patients after approximately 20 years of age, whereas it increases in the general population until about 60 years.

The death rates vary in the several groups of psychoses. Separate chapters are devoted to the more important groups, including analyses of mortality among patients with dementia præcox, manic-depressive psychoses, psychoses with cerebral arteriosclerosis, general paralysis, and alcoholic psychoses. The remaining psychoses are summarized in a concluding chapter. It is shown that the death rates are highest in the organic psychoses and lowest in the functional groups. They are highest in psychoses with brain tumor and psychoses with other somatic diseases. Among the principal groups of psychoses, the death rates are highest in senile psychoses and in psychoses with cerebral arteriosclerosis. The death rates are lowest in psychoses with psychopathic personality, dementia præcox, and psychoses with mental deficiency.

As previously noted, diseases of the heart constitute the leading cause of death, including 32.0 per cent of all deaths among the mental patients, compared with 23.7 per cent of the deaths among the general population. The principal exception occurred in dementia præcox where pulmonary tuberculosis is the leading cause of death. Even in dementia præcox, however, the death rate from diseases of the heart is relatively very high. In the manic-depressive psychoses there is an unusually high death rate from exhaustion which ranks as the third leading cause in this group.

These results appear to open wider fields of investigation. The differences in causes of death among patients with dementia præcox and manic-depressive psychoses, for example, are indicative of possible differences of physical type, a subject which has received much attention from psychiatrists in recent years. Of more practical interest, however, is the question of the prevention of mortality in the State hospitals. It is of importance to note

that prevention, with reasonable regard to age and the physical condition of many of the patients, depends upon the discovery and treatment of heart diseases and other circulatory disorders. This is the principal problem not only among the patients but also among the general population, and consequently depends for its solution upon the general advance in medical knowledge. It should be of particular interest, in addition, to pursue more detailed studies of the incidence of cancer and diabetes among patients with mental disease.

As the data contained in this book have been prepared with exceptional skill and understanding, it constitutes a valuable reference work for the hospital library.

POLLOCK.

ANNUAL MEETING OF THE AMERICAN OCCUPATIONAL THERAPY ASSOCIATION

The eighteenth annual meeting of the American Occupational Therapy Association was held at Philadelphia, Pa., September 24 to 27, 1934, in connection with the meeting of the American Hospital Association.

The total registration of 400 members was the largest member attendance ever recorded in the history of the association. Twenty-eight states were represented. Pennsylvania led with 151 and New York was second with 100. Nineteen of the hospitals or institutions of the New York State Department of Mental Hygiene were represented, either by chief occupational therapists or others designated by the superintendent.

The following officers were elected for the ensuing year: President, Dr. Joseph C. Doane of Philadelphia; vice-president, Everett S. Elwood of Philadelphia; secretary-treasurer, Mrs. Eleanor C. Slagle of New York.

For the Board of Managers, the following were elected (for three years):

Miss Alberta Montgomery of Iowa,

Mrs. Samuel H. Paul of Philadelphia, Pa.,

Horatio M. Pollock, Ph. D., of Albany, N. Y.,

Miss Kathryn Root of Stamford, Conn.,

Mrs. Gertrude Sample of Chicago, Ill.

The first formal session, held on Tuesday afternoon, September 25, was opened by a most impressive invocation by the Rev. C. C. Tyler, D. D., of Philadelphia. Cordial welcome was extended to the association by Hon. J. Hampton Moore, mayor of Philadelphia, and by Mrs. I. Albert Liverwright, secretary of welfare, Commonwealth of Pennsylvania. The presidential address, by Dr. Joseph C. Doane, dealt with the integrity of a service in which the improvement and comfort of the patient is the measuring yard of the physician in charge; also with the need of adequate training for preparation for this newer branch of medical therapeutics. This session concluded with the presentation of a paper by Dr. Horatio M. Pollock of the New York State Department of Mental Hygiene, on the relationship of occupational therapy to medicine. The paper was enthusiastically received.

The banquet, which was held at the Benjamin Franklin Hotel, was an inspiring session, with the largest attendance ever recorded for a similar occasion. Addresses of exceptional interest were given by Dr. Robert Jolly, president-elect of the American Hospital Association, and Dr. Wilmer Krusen, president of Philadelphia College of Pharmacy and Science.

The deliberations of one entire session were devoted to methods for the

rehabilitation of the physically handicapped, and reconstruction orthopedic surgery; other sessions related to the occupational treatment of the tuberculous and the blind.

Interest in all of the sessions was unflagging but to those whose chief interest lay in occupational treatment for psychiatric patients, undoubtedly the session held at the Institute of the Pennsylvania Hospital was the outstanding one of the annual meeting. The Institute, with its fortunate setting of beautiful grounds, its spacious physical accommodations for patients and staff, and best of all its adequate and beautifully planned occupational center, with ample arrangement for work and social activity, was an inspiration in itself. Well-planned, light and beautifully decorated rooms must have struck an envious note in the hearts of some who, perforce, must work on in ill-ventilated, dark basement spaces that have not been desirable for any other purpose. The tributes paid the occupational therapy work at the Institute were indeed heartening to all. Speakers at this session included:

Laurden H. Smith, M. D., executive medical officer, Institute of the Pennsylvania Hospital.

Harold D. Palmer, M. D., Institute of the Pennsylvania Hospital.

Earle D. Bond, M. D., medical director, Institute of the Pennsylvania Hospital.

Annie R. Elliott, M. D., acting superintendent, Norristown State Hospital.

Gladys C. Carter, O. T. Reg., Allentown State Hospital.

Philip Smith, M. D., medical inspector, New York State Department of Mental Hygiene.

Mary P. Diaz, O. T. Reg.

Kathryn Wellman, O. T. Reg., chief occupational therapist, Institute of Pennsylvania Hospital.

Mrs. Pope Yeatman, donor of the Philadelphia School of Occupational Therapy, and the Board of Directors of the school, entertained the members of the association and their guests at tea at Strankey Mansion, of the revolutionary period.

The last session of the meeting was an open forum on "Occupational Therapy—Its Expense Versus Its Benefits to Patients." With a single exception, perhaps to prove the rule, all were of the opinion that occupational therapy was a most necessary part of medical armamentarium.

With a few well-chosen, helpful words of President Doane, one of the most successful and inspiring meetings in the history of the association was brought to a close.

ELEANOR C. SLAGLE.

SYPHILIS AS A HEALTH PROBLEM

Dr. Joseph Earle Moore, associate in medicine, Johns Hopkins University School of Medicine, in an address at the annual Conference of Health Officers and Public Health Nurses, at Saratoga Springs, June 27, 1934, outlined the present status of the problem of syphilis, and urged more effective action in the prevention of this great plague. The following are quotations from his address:

MAGNITUDE OF THE PROBLEM

I have emerged from fifteen years of experience in clinical syphilology with several firm convictions: These are:—first, that syphilis is easily the most prevalent of the major communicable diseases; second, that directly and indirectly, it costs the taxpayer more than any other infectious disease; third, that there are already available the weapons with which it might be, if not entirely stamped out, at least reduced from a major to a minor problem within a generation; fourth, that though these weapons have been available for a decade or more, we are moving not forward, but backward—syphilis in this country is actually increasing, not decreasing; fifth, that the blame for this paradoxical situation may be placed at least in part, on the shoulders of the public health officer. Let me amplify my several points.

In Baltimore, during the five-year period, 1929-1933, there were more cases of syphilis reported to the City Health Department than of any other communicable disease. More than 18,000 cases of syphilis have been reported during these five years. Startling as these figures are, it is estimated that they represent less than half of the new cases discovered. More than that, each of the years, 1929-1933, has seen a progressive increase in the number of cases of syphilis reported; in 1933, 4,500 as compared with 3,100 in 1929. Worse still, the deaths from syphilis—counting only those reported to the health department as actually due to syphilis—exceed the deaths from any other communicable disease except the two leaders, pneumonia and tuberculosis. This statement does not include the deaths from syphilis masquerading under politer but less definite names.

Now as to my second point, the costs of syphilis to the community: this is almost impossible to determine with accuracy, because the ramifications of the disease are so wide. The actual cost of venereal disease—largely syphilis—to the taxpayers of St. Louis is estimated at \$600,000-\$1,000,000 annually; and in addition, another million and a half is spent by patients for physicians' fees and for private hospital care, or for patients by such welfare and charitable agencies as the private hospitals themselves, the Community Fund, etc. Of the million dollars expended by the taxpayers, how-

ever, only a drop in the bucket—about \$60,000—is spent where it would do most good, i. e., in the treatment of early syphilis.

My third and fourth points need little elaboration. Our difficulty in this respect has not been that the weapons were lacking. Rather, it lies in two other facts:—(1) the wide-spread ignorance of physicians as to how to use the available methods of attack, an ignorance which extends, unfortunately, even among the medical personnel of some clinics run by departments of health; and (2) our inability to persuade patients to continue treatment to the necessary limits.

As to my fifth belief, that some of the blame for this situation rests on the shoulders of the public health officials, I must attempt to justify myself. I can not think that public health experts fail to recognize the magnitude of the syphilis problem. There is a conspiracy of silence regarding the venereal diseases in which I believe that public health officials not only share but for which in large part they are responsible. Their responsibility lies in the fact that, far more than other physicians, they are involved in intimate relationship with every other member of the medical profession and with the lay public. So far as communicable diseases are concerned they are, or should be, the mouthpieces of medicine.

While I am willing to agree that all plans of syphilis control so far tried in this country have failed, I am not yet prepared to admit that the medical profession can not drag itself out of the morass of failure. To do so, however, we need to end the conspiracy of silence among ourselves and with the laity. We need to talk about syphilis among ourselves and with the intelligent laity, not only as a potentially crippling and fatal disease the spread of which menaces everyone of us but also in terms of dollars and cents. Where the taxpayer refuses to become alarmed as to the possibility of his own blindness or insanity twenty years hence, he will wince with pain at an increase in the figure in the lower right hand corner of his tax bill. The public health officer is the physician who must take the lead in breaking down this conspiracy of silence.

Insofar as syphilis control is concerned, we are faced with a situation in which we must improve our status both as physicians and as economists. We must effect not only a widespread betterment in the way in which the disease is managed but also in the way in which that management is paid for. Unless we are equal to both of these tasks, there remain but two alternatives—to continue the conspiracy of silence, to make no progress in the control of a major infectious disease problem; or, by the breaking down of the conspiracy and the awakening of an enlightened public opinion to see the problem taken from our hands and given over to those of the State. Perhaps one of the two alternatives, both distasteful to all physicians, is inevitable. The effort to avoid them, led by public health officials is worth the trial.

DEATH OF DR. WEISENBURG

Dr. Theodore H. Weisenburg, distinguished neurologist and editor-in-chief of the Archives of Neurology and Psychiatry, died in the Graduate Hospital of Philadelphia, August 3, 1934, at the age of 58. He had been ill for more than a year.

Dr. Weisenburg was born in New York City, April 10, 1876. He received his medical degree from the University of Pennsylvania in 1899. In 1901, he became assistant surgeon in the U. S. Army in the Philippine Islands. He returned to Philadelphia in 1903 and practiced in that city as a specialist in nervous and mental diseases until the time of his last illness. He was an instructor in nervous diseases in the University of Pennsylvania from 1904-1907. In the latter year he was promoted to professor in the Graduate School of Medicine. He served as president of the American Neurological Association in 1919 and for several years past has been editor-in-chief of the Archives of Neurology and Psychiatry. During the World War, Dr. Weisenburg served as a major in the Division of Neurology and Psychiatry.

Dr. Weisenburg was a pioneer in the use of motion pictures for the study of nervous and mental patients. In 1913, he showed several miles of films to demonstrate the behavior of persons suffering from various types of nervous and mental disorders.

NOTES

—The date of the Second International Congress on Mental Hygiene has been postponed from July, 1935, to July, 1936. The postponement was felt necessary in view of economic conditions throughout the world.

—Dr. William B. Terhune, who was formerly associated with Dr. Austin Fox Riggs, at Stockbridge, Mass., has opened an office for the treatment of functional nervous disorders at Silver Hill, New Canaan, Conn. Silver Hill is a country house which has accommodations for 20 patients.

—Dr. Howard W. Potter, who had served for several years as assistant director of the Psychiatric Institute, resigned on October 1, 1934, to engage in the private practice of psychiatry. He has opened an office at 70 East 77th Street, New York City.

—Dr. James L. McCartney, who organized the Classification Clinic at the Elmira Reformatory in 1931, and who for the past three years has been the psychiatrist and director of the clinic under the New York State Department of Correction, resigned from the Department, September 1, 1934, to enter the private practice of neuropsychiatry in Portland, Oregon. Last year Dr. McCartney under a grant from the Salmon Memorial Committee of the New York Academy of Medicine completed a textbook on the classification of prisoners, which the committee has accepted for early publication.

—Dr. Frederick L. Hoffman has analyzed the cancer death rate in a group of 50 American cities from 1906 to 1933, and finds a steady increase throughout the period. From 1906-1919, the death rate from cancer increased 36.2 per cent. From 1920-1933, there was an increase of 24.4 per cent. In 1933, there were 39,871 deaths from cancer in this group of cities, representing a death rate of 124.7 per 100,000 population, compared with a rate of 122.7 in 1932. The highest death rate from cancer, 304.2, occurred in Madison, Wis. Concord, N. H., followed with 217.5. Other cities with rates above 150 per 100,000 population were Portland, Me.; Pasadena, Calif.; Boston, New Haven, San Francisco, Minneapolis and Portland, Ore. The lowest rate occurred in Hamtramck, Mich., which had a rate of 17.0. Winston-Salem, N. C., Gary, Ind., Flint, Mich., Portsmouth, Va., and McKeesport, Pa., also had low rates. In the five largest cities of the United States the death rate from cancer increased from 114.8 in 1932 to 116.0 in 1933. In

Detroit, however, the rate decreased from 71.0 to 64.4. In Los Angeles the rate decreased from 125.7 to 123.4.

Classifying 176 American cities in three groups according to size of population, Dr. Hoffman shows that the death rate from cancer increases progressively with the size of the city. He also shows that cancer at age 60 and over has increased in the past three decades.

—Pursuant to action taken at the Quarterly Conference of the State Department of Mental Hygiene held in New York City in May, 1934, a memorial tablet in tribute to the late Dr. Charles W. Pilgrim has been designed and will be placed in the administration building of the new Pilgrim State Hospital at Brentwood, L. I. The tablet will bear the following inscription:

INCONTAMINATIS—HONORIBUS
IN MEMORY OF
CHARLES WINFIELD PILGRIM
1855—1934
PHYSICIAN SUPERINTENDENT
COMMISSIONER
DISTINGUISHED FOR CULTURE, GENTLENESS
AND DEEP DEVOTION TO THE WELFARE
OF THE UNFORTUNATE

The tablet is a gift of the administrative heads of the State Department of Mental Hygiene, the superintendents of the State hospitals and institutions of the Department and a few other friends of Dr. Pilgrim.

—The New York State Department of Mental Hygiene and the State Department of Health are cooperating in giving an extension course in mental health to the public health nurses throughout the State. Instruction classes will be conducted at several of the State hospitals by physicians detailed for the work by hospital superintendents.

In order to unify the program and to stimulate interest in the courses, a two-day Institute on Mental Health for group leaders was held at the State Psychiatric Institute and Hospital in New York City, September 24 and 25, 1934.

At the general session on the morning of September 24, Dr. Harry A. Steckel, presided. Addresses relating to mental disease and mental hygiene were given by Dr. Horatio M. Pollock, Dr. Clarence M. Hincks, Dr. Harry A. Steckel. These were followed by addresses on the work of the public health nurse and its relation to mental hygiene by Miss Marion W. Sheehan, Miss Sybil H. Pease and Miss Glee M. Hastings of the State Department of Health.

The afternoon session was devoted to a discussion of the ways in which the public health nurse can assist the mental hygiene program and vice versa.

The sessions on the following day were conducted by Miss Leah M. Blaisdell, extension secretary of the State Department of Health. The discussion, which related principally to the outlines for mental health teaching in the monthly sections of the year's study program, was led by physicians who had been assigned to conduct courses at the several hospitals.

It is believed that this comprehensive instruction program will prove of great value in connection with the efforts of the State Department of Mental Hygiene to prevent mental disease and to secure proper treatment for persons living in the community who are afflicted with nervous and mental disorders.

—In his annual review of suicide in 1933, Dr. Frederick L. Hoffman reports a decline from a rate of 21.3 per 100,000 population in 100 American cities in 1932, to a rate of 19.1 in 1933. In another group of 179 American cities, he reports a decline from a rate of 20.8, in 1932 to 18.8 in 1933. He attributes the decrease to improved economic conditions. The maximum suicide death rate in the latter group of cities in 1933 was 40.3, which occurred in Davenport, Iowa. San Francisco followed with a rate of 38.0. Other cities with high rates included Denver, Atlantic City, Tacoma, San Diego and Sacramento. The lowest rate, 2.1, occurred in Williamsport, Pa. Other cities with low rates were Troy, Lansing, Holyoke and Niagara Falls. Brockton, Mass., showed an increase from a rate of 11.0 to 28.1. In Galveston there was an increase from 16.5 to 29.2. Auburn, N. Y., on the other hand, showed a decrease from 29.9 to 19.0. In Lansing there was a decrease from 24.1 to 4.7 and in Williamsport the rate decreased from 16.7 to 2.1.

The total of suicides in the United States registration area in 1932, exclusive of Utah, was 20,880, or a rate of 17.5 per 100,000. Of this total 8,050 were caused by fire arms. Deaths by hanging or strangulation included a total of 3,625, and deaths by poisonous gas included a total of 3,000.

In the five largest cities in the United States, the death rate from suicide decreased from 20.6 to 18.3. In Los Angeles, however, the rate increased from 28.8 to 30.4.

Suicide death rates are much lower in Canadian cities. These show a reduction from a rate of 11.2 in 1932 to 9.9, in 1933. The maximum rate in 1933 occurred in Vancouver, B. C., which had a rate of 17.3. The lowest rate, 2.7, occurred in London, Ontario. A classification of international

suicide rates shows that Chile and the Irish Free State are lowest with rates of 3.2 and 3.4, respectively. The maximum rates occurred in Hungary and Austria with rates of 29.8 and 34.5, respectively. The United States, with a rate of 13.9, ranks about in the middle of the list of nations. Dr. Hoffman emphasizes the close relation between mental disease and potential suicide.

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